Smithsonian

June 1997

A quiet revolution in the Borderlands (p. 50)

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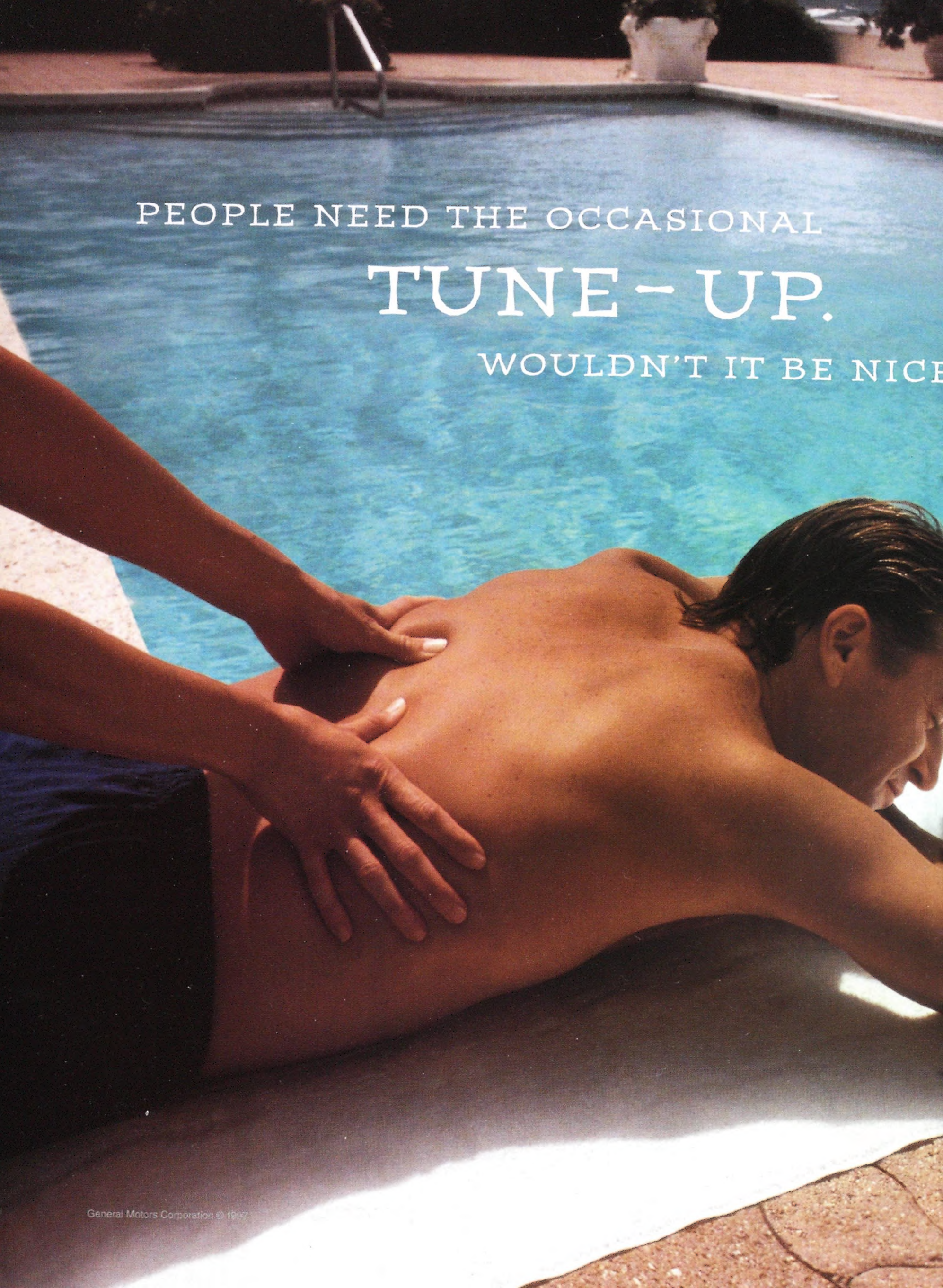

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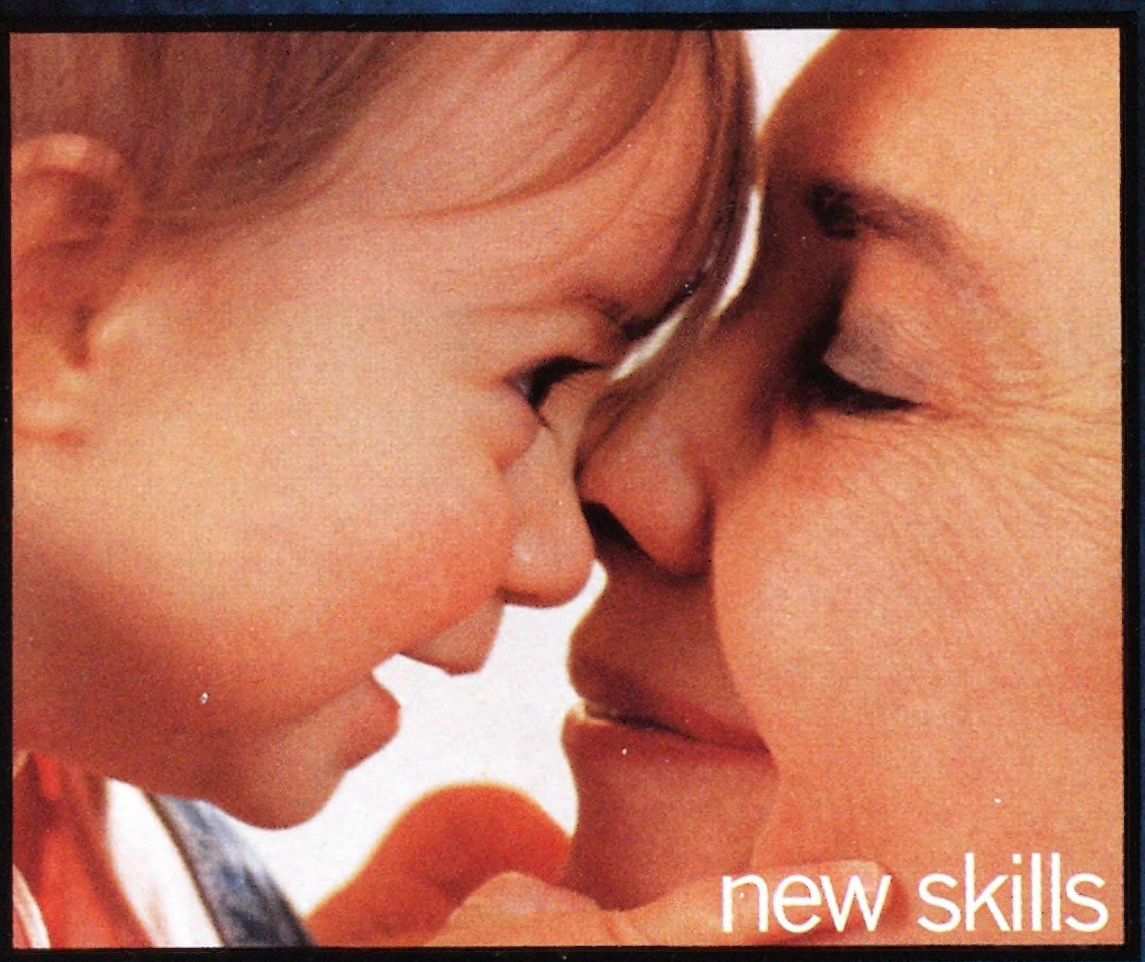

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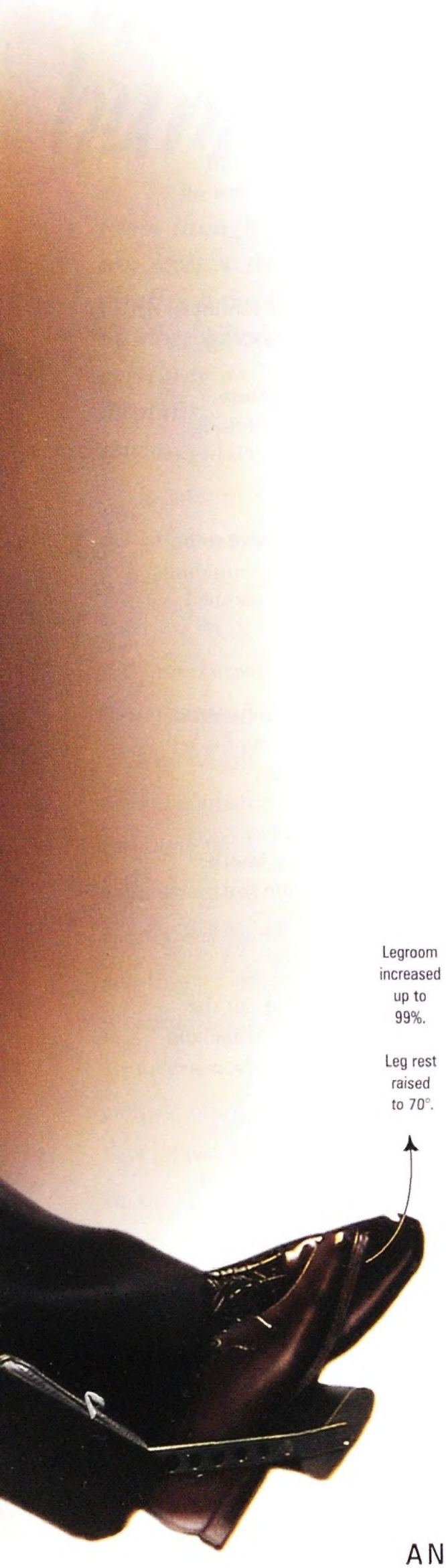

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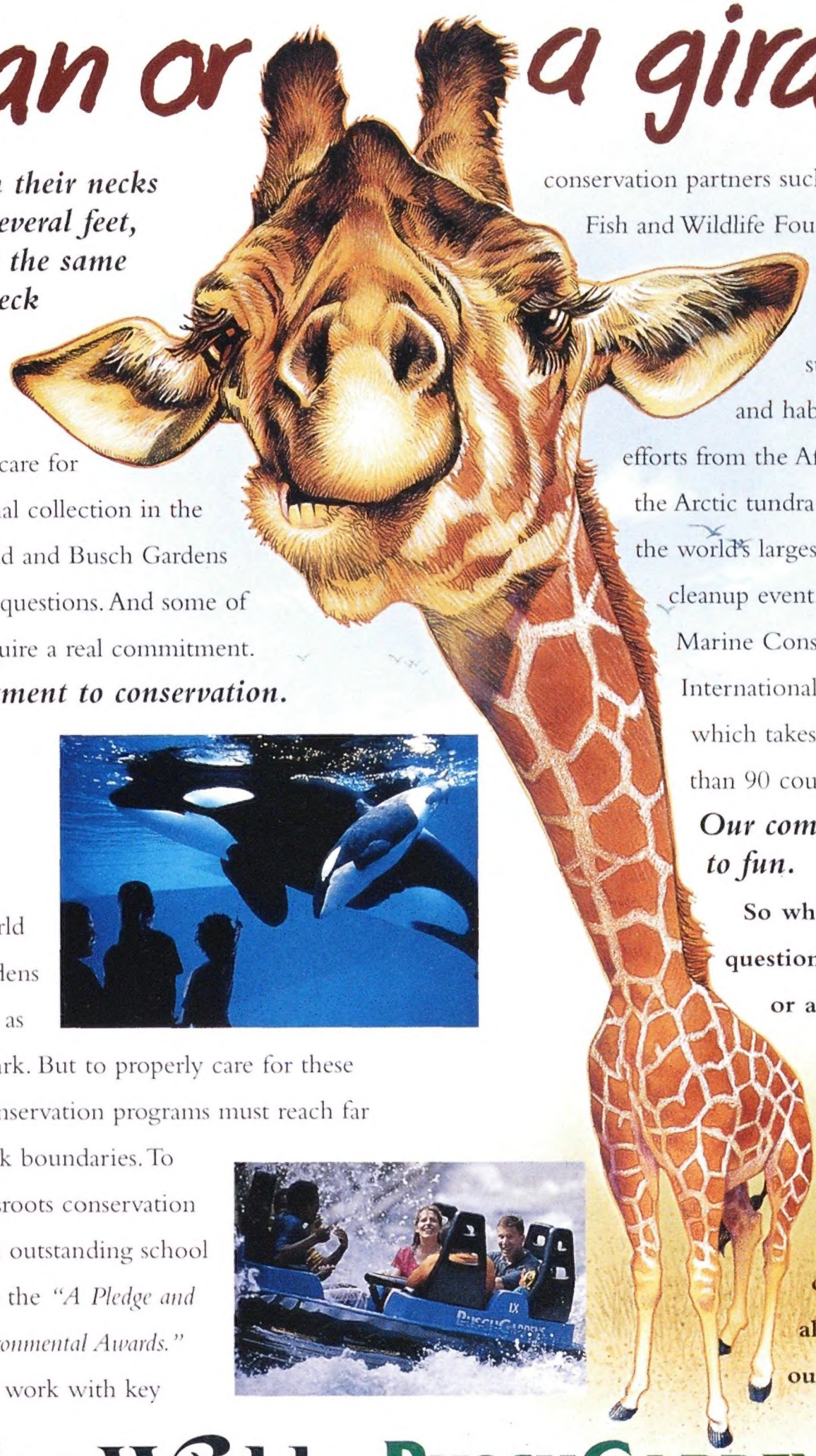
Which animal has more neck bones... a human or a giraffe?



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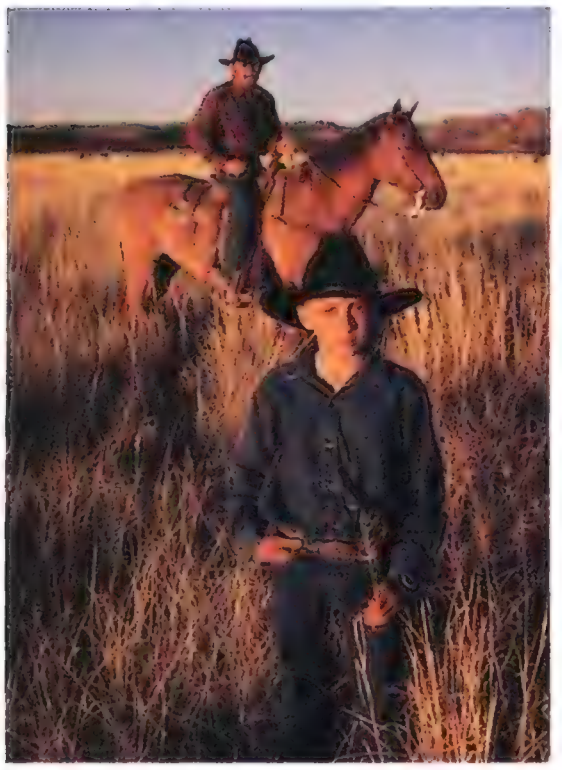

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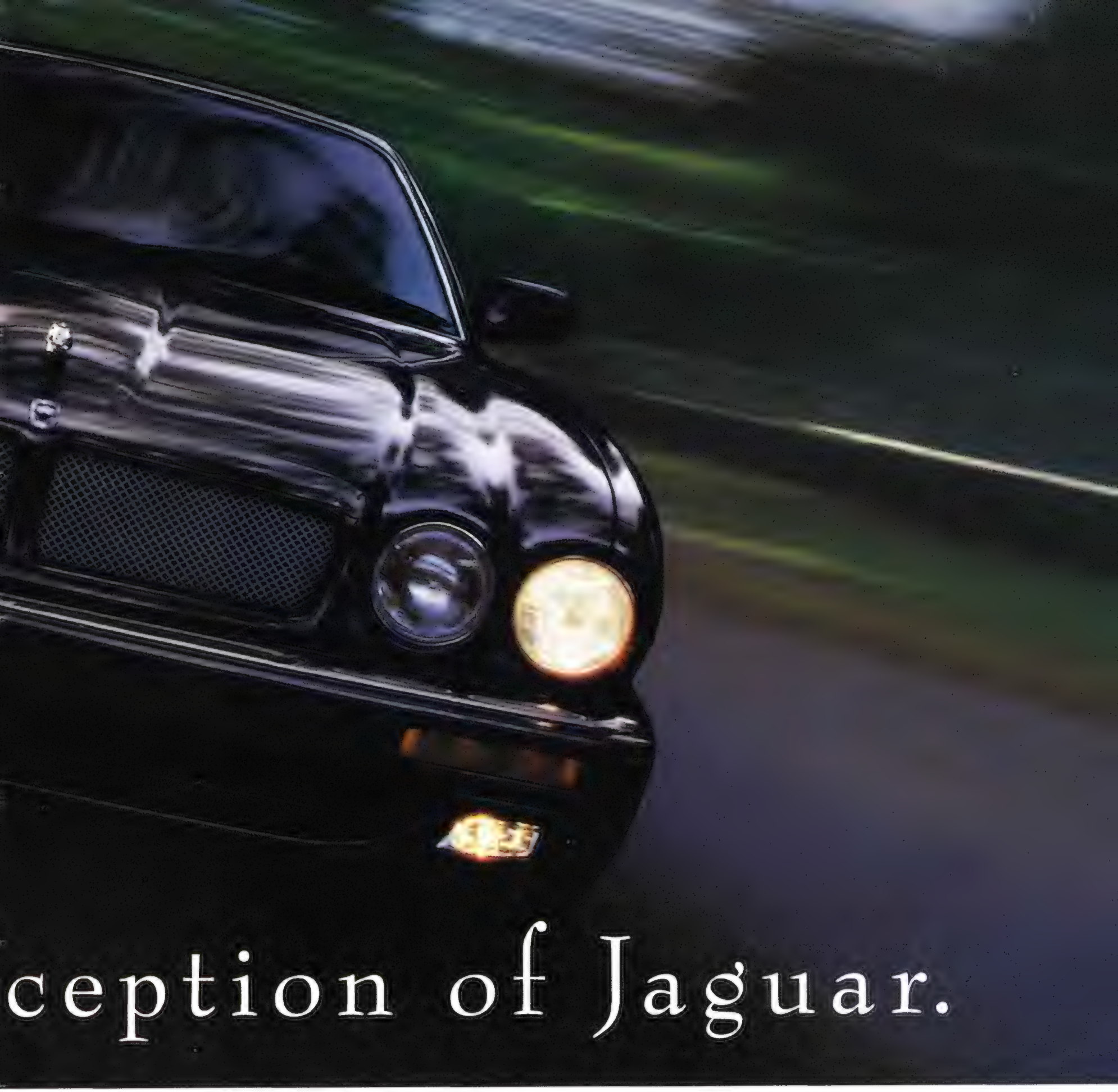

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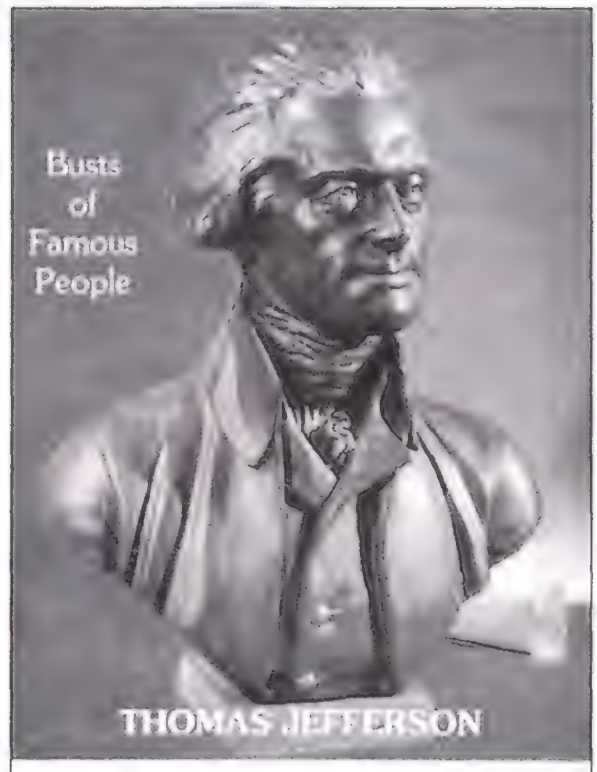

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Smithsonian Perspectives

Through object-based education and other programs, the Smithsonian reaches out to teachers and students

The Smithsonian, in accordance with James Smithson's bequest, is devoted to the "increase and diffusion of knowledge." Characteristically, the Institution achieves this objective through its research and exhibitions, two activities that are at the heart of acquiring and imparting knowledge. In the past, "diffusion" consisted mainly of the publication of scholarly papers and books, and the exhibition of objects together with labels, text and catalogs. More recently, however, we have become deeply involved in school-centered education. The Smithsonian has developed educational materials and programs that, in effect, bring our museums and research institutes to the classroom—educational programs based on actual objects and other primary sources.

Traditionally, education has relied heavily on texts and lectures, questions and discussions. "Words" are at the core of the experience. Object-based education focuses the learning experience more on artifacts and primary documents in a manner that taps children's diverse learning styles while stimulating interest and providing a deeper understanding of the subject.

One Smithsonian project for schoolchildren based on this approach is titled "Of Kayaks and Ulus." It was created largely by the National Museum of Natural History for grades seven through ten. The project (originally presented in a kit, but soon available on the Internet) involves Bering Sea Eskimos and emphasizes the journals and collections of Edward Nelson, a famous 19th-century Smithsonian naturalist.

The kit contains a guide for teachers. It suggests, for instance, that students view ten "mystery" slides of objects from the Eskimo culture, then ponder how these objects were made and used. Further discussion usually elicits hypotheses about the environment in which the people who made these items lived, the natural resources they depended upon, their ability as craftsmen, and similar topics. After this process the class learns that all the objects, and many others, are at the Smithsonian in a collection amassed by Nelson. The teacher then produces an assortment of primary sources from the kit—reproductions of Nelson's letters, journals, photographs, drawings and field notes.

In subsequent classes, students read and analyze Nelson's papers, learn the Creation story of the Bering Sea peoples, see additional slides and complete written assignments. The guidebook allows teachers the flexibility to introduce related subjects, but the pictures of the objects and actual documents are the centerpieces around which the curriculum is organized.

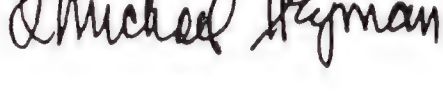
There is a host of other examples of similar curricula developed by the Smithsonian. A popular one is a series of science kits featuring hands-on experiments for students in grades one through six. Created by the National Science Resources Center (a joint initiative of the Smithsonian and the National Academy of Sciences), they enable children to learn by doing experiments as well as reading texts. The kits are used in more than 20 percent of the nation's school districts, and similar curricula are now being fashioned for grades seven through nine. I observed classes using these materials in Anchorage, Alaska, and was very impressed with the students' performances and the teachers' skills. Other notable science-education projects are occurring in the Smithsonian Astrophysical Observatory, the National Museum of Natural History, the National Zoological Park, and in conjunction with exhibitions in the National Museum of American History and the National Air and Space Museum.

Studies indicate that skillfully done, object-based education is a successful means of engaging young people and teaching a variety of skills and subjects. If these techniques are to be widely used in schools and museums, considerable resources must be invested in the preparation and distribution of materials and, most importantly, in teacher training. Teachers usually will not depart from conventional modes of instruction unless they are convinced of the utility of the suggested substitute and are confident that they can use the new techniques well.

The Smithsonian has been involved in a number of activities to inform teachers and to offer relevant training, especially in the Washington metropolitan area. Summer seminars for teachers, conducted largely within Smithsonian museums and research institutes, focus on how to use museum collections in the teaching process. Similarly, Smithsonian staff have worked with the National Faculty, a nonprofit educational organization, in extensive teacher training programs around the country, involving curators from the Institution and local museums, and distinguished university professors.

The Smithsonian also brings thousands of Washington-area teachers together at an annual Teachers' Night to display and discuss the materials and programs the Institution makes available to local schools. Finally, the Institution is beginning to use the Internet to share curricula ideas and lesson plans, and to present actual classes in an interactive mode.

The Provost has organized our various school-based educational efforts in a new Smithsonian Office of Education. The office is a symbol of the importance we assign to this mission and a means for its more effective accomplishment. I have confidence that object-based education has an important role to play in instructing our schoolchildren, and that the Smithsonian has the materials and the creative people to fashion excellent programs. The challenge is to organize and support these efforts.



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Letters to the Editor

Bank crisis of 1933

Thank you for the article by James R. Chiles, in the April issue, on the bank crisis of 1933. Although President Franklin Delano Roosevelt ordered the "bank holiday" to begin on March 6, John L. Gay, president of the Berea National Bank, ignored the telegram telling him of FDR's proclamation. His daughter, Mary Gay Walker, told me that her father received a telephone call at home that evening, and from his tone and demeanor, she knew it was about business. He cut the conversation short by banging down the receiver. Turning to his family he roared, "I'll be damned if I'll be told by anyone to close my own bank."

The bank remained open, and only one depositor came in to ask for his money. The taciturn Gay went to the vault, returned to the window and personally counted out the money. That done, he nodded toward the entrance and said, "Now leave this bank and never enter it again!"

Virginia Ferrill Piland
Berea, Kentucky

The Houston banks did not close during the bank holidays of the Depression years because of the efforts by Jesse H. Jones. Jones lived and held court at the historic Rice Hotel, and gathered all the Houston bankers there. He had them agree that they would back each other's bank with their own bank's funds and their personal fortunes.

Kenneth W. Zingrebe II
Houston, Texas

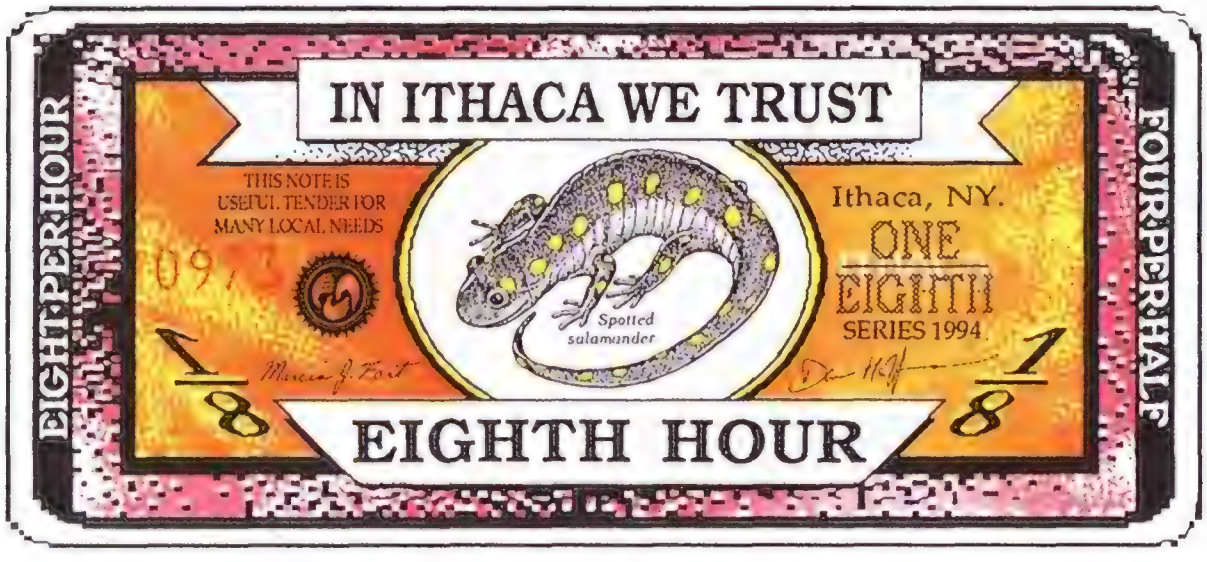
During the 1933 bank holiday, some U.S. cities were printing their own "substitute currency," as James R. Chiles called it. The city of Ithaca revived this tool in 1991 by issuing more than $60,000 of local paper currency called Ithaca HOURS. Each HOUR is valued at one hour of basic labor or $10. The multicolored notes buy plumbing, carpentry, electrical work, roofing, nursing, child care, food, eyeglasses, firewood and thousands of other goods and services. More than $2 million in value has been traded with HOURS so far.

HOURS have not only expanded the local money supply, they have promoted local shopping; doubled the local minimum wage; helped start new businesses and created jobs; provided grants to nonprofit community organizations; made zero-interest loans; and stimulated community pride.

Paul Glover
Ithaca, New York

John Barrymore

I enjoyed Donald Dale Jackson's excellent article on actor John Barrymore.



Another terrific actor, Fredric March, portrayed the Great Profile almost 70 years ago in George Cukor's film *The Royal Family of Broadway*. Based on the popular 1927 comic play by Edna Ferber and George S. Kaufman, it satirized the Barrymore family, mildly disguising them under the name Cavendish. March's on-target spoof of the hammy John of the Silent Era was the gem of the production.

Raquel Hendrickson
Mountain Grove, Missouri

My parents took me to see the Great Profile in his declining years at the Blackstone Theater in Chicago. As the play progressed, he forgot lines, misplaced others and miscued his fellow actors. Scattered laughter in the audience began to escalate. After a few minutes of this distraction, Barrymore stopped in mid-sentence and stepped forward to the edge of the stage. He peered out over the theater and, in a booming Shakespearean accent, said, "Go ahead and laugh, you bastards, but how many of you realize that you're laughing at your father." He turned on his heel and left, which ended the play for that performance. He had the last laugh and made a spectacular exit.

Stephen M. Cornell
Chicago, Illinois

Your article called Sadakichi Hartmann [one of "The Bundy Drive Boys" along with Barrymore, Gene Fowler, W. C. Fields and John Decker] "an art historian notable for his gifts as a creative freeloader," which totally ignores the genius of the man.

Hartmann was the first person to recognize and treat photography as true art. He was an art, film and photography critic, a lecturer, poet, novelist (*The Last Thirty Days of Christ*), a playwright, essayist, dancer and actor (*The Thief of Bagdad* with Douglas Fairbanks), and a social commentator. Between 1898 and 1902 he published more than 350 German-language sketches about New York life for the *New Yorker Staats-Zeitung*. He was a ghostwriter for Elbert Hubbard in the Roycroft Community from 1912 to 1916.

Despite becoming an American citizen in 1894, he was under threat of internment at the outbreak of World War II because of his German and Japanese forebears. He even pointed out to the government that he had written the first modern history of American art in 1901, but he was hounded until his death in

Continued on page 28

While Finding The Right Countertop Can Be A Daunting Experience, Choosing What Goes With It Is Not.

The tile or the marble? Conceptually, it was a house divided. And the more opinions the couple asked for, the more confused they both became.

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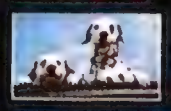

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1944. True, he was a freeloading alcoholic, but to dismiss him as only that is to do him a grave injustice.

My department has published a 73-page catalog of our Hartmann Collection, which currently represents less than half of our Hartmann holdings.

Sidney E. Berger
Head of Special Collections
University of California, Riverside

La Salle

In his article on René-Robert Cavelier, Sieur de La Salle, and the recent discovery of La Salle's ship the *Belle*, David Roberts described the fate of the explorer at the hands of Pierre Duhaut. The "conspirator" who led La Salle into the fatal ambush was Jean L'Archevêque, my seventh great-grandfather. He joined the expedition in Santo Domingo where he worked for Pierre Duhaut. After the murder, L'Archevêque and Jacques Grollet deserted the group and took refuge with the Indians for two years before surrendering to the Spanish.

Eventually the two Frenchmen joined Don Diego de Vargas in the reconquest of the province of New Mexico. Later L'Archevêque married into a Spanish family in Santa Fe and became a successful merchant and an adviser to a Spanish governor.

Edward T. Garcia
Genealogical Society of Hispanic America-Southern California
La Verne, California

In February I traveled to La Rochelle where I located the leasing contract for the *Aimable* in the archives at the Département de la Charente-Maritime. The contract bore the signature of La Salle and Jean Massiot le jeune, a merchant in La Rochelle and the owner of the ship. I now understand why La Salle was so quick to accuse Capt. Claude Aigron of culpability in the loss of the vessel. After unloading the goods and equipment, the *Aimable* was to travel to Martinique to pick up merchandise and then return to La Rochelle. The contract clearly indicates that La Salle was personally responsible for the ship.

I also discovered the crew rolls for the *Aimable* and the *St. François*, as well as 37 individual contracts of engagement, all of them signed by each volunteer and La Salle. One of these contracts, dated July 3, 1684, was for Estienne Liotot, one of the two men responsible for La Salle's murder. In all, 70 new names have surfaced, including engineer Minet's first name: Jean-Baptiste.

John de Bry, Director
Center for Historical Archaeology
Melbourne Beach, Florida

Golf courses

Writer Jay Stuller might want to check out a fairly ecologically undisturbed golf course in northern Nevada near Gerlach. Lucifer's Anvil Golf Course on the playa (dry lake bed) of the Black Rock Desert has been host to the annual Self-Invitational Black Rock Desert Classic Golf Tournament since 1988. Volunteers construct the course each year around the summer solstice and add color to all of the greens and tee boxes, as well as some of the fairways, using environmentally friendly, nontoxic, biodegradable paints (see picture above).

The tenth anniversary of the tournament begins on June 21.

Douglas Keister
Oakland, California

Being an avid golfer, I was pleasantly surprised to see your excellent article on golf course designs using natural landforms and native grasses. There is a golf course in Farmingdale, Long Island, that is not only beautiful but uses the existing landscape to maximum advantage. It is a public course and the fees are minimal. The course is challenging (par 71) and has a layout and natural features that reward the prudent and punish the errant. I speak of the famous Black Course of Bethpage State Park, which has been selected for the 2002 U.S. Open.

Richard M. Frauenglass
Huntington, New York

As we native Augustans say down here, fiddle-de-dee to the concept of the "Augusta National Syndrome." The Augusta National Golf Course was built on the grounds of the former Fruitland Nursery, already beautifully landscaped.

Marcella H. Hair
St. Simons Island, Georgia

Komodo dragons

The article by Eric Wikramanayake on the Komodo dragon is in the finest tradition of natural history reporting. The 1926 American Museum of Natural History expedition brought back the first specimens of the dragon as well as the first photographs and movies of the lizards in their natural habitat. Douglas Burden headed the expedition and introduced the dragons to the public in his book *The Dragon Lizards of Komodo.* A footnote: Burden told his friend and fellow explorer, Merian C. Cooper, about his adventures on Komodo, which inspired Cooper's celebrated movie *King Kong.*

George E. Turner, coauthor of
The Making of King Kong
Pasadena, California

Send mail to Letters Editor, SMITHSONIAN, *900 Jefferson Drive, S.W., MRC 406, Washington, D.C. 20560.*

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The Object at Hand

By Adele Conover

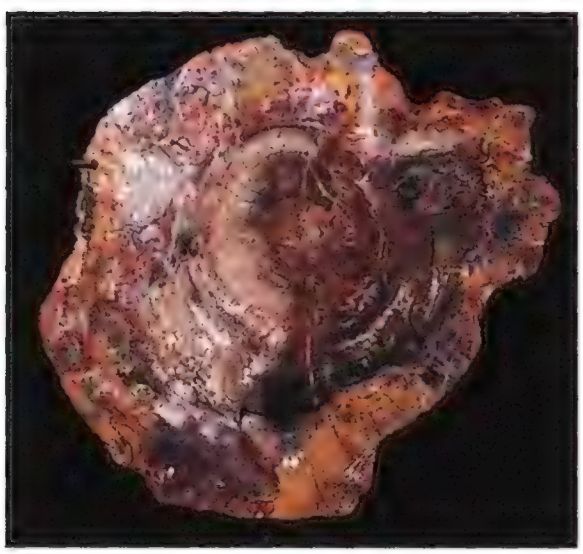
From a forest that flourished 207 million years ago, the Sherman Logs bear stony witness to a general's curiosity—and life in an age gone by

Sherman's petrified logs are six to eight feet long and weigh nearly a ton.

In one corner of the Early Life hall of Smithsonian's National Museum of Natural History stand two petrified tree trunks. They are 207 million years old, stony relics of an ancient conifer (*Araucarioxylon arizonicum*) that once flourished in prehistoric Arizona. Smithsonian curators refer to them as the "Sherman Logs," because they were collected in 1879 at the instigation of Gen. William Tecumseh Sherman, the man who led the March from Atlanta to the sea near the end of the Civil War.

Back in the Triassic period they flourished in what is now known as the Black Forest, part of the 93,492-acre Petrified Forest National Park in Arizona. Prehistoric Arizona was a flat stretch of tropical turf in the northwest corner of a supercontinent known to modern geologists as Pangaea.

The trees towered as high as 200 feet and measured more than 2 feet in diameter. Once felled, they "turned to stone" almost instantly (at least in geological terms, meaning anywhere from tens to hundreds of years). Partly because of the fossil evidence they contain, we know what felled them. Arizona could be hot back in the Triassic period, and it had wet and dry seasons on a grand scale—in keeping with the earth dramatics of the time. During the wet season, megamonsoons swept across Pangaea and turned dry-season streamlets into thunderous, roiling rivers.



In many petrified trees, presence of iron oxides creates a bright array of colors.

One rainy season more than 200 million years ago, an enormous volcano added to the confusion by blowing its stack and overloading the already overflowing rivers with ash and debris. The waters jumped their banks and fanned out in a Ganges-like flood, charging across the floodplain, and toppling the big trees, burying them at least 30 to 40 feet deep. Shut off from air, and thus protected from oxidation, bacteria and fungi, the trees did not rot; the wood was instead gradually replaced by rock-hard minerals like the glassy silica so abundant in volcanic ash.

These minerals began to crystallize between the waterlogged wood's cell walls. As the cell structure itself broke down, crystals formed in those spaces as well. In some logs iron oxides and other minerals provide a rainbow of colors (but logs that still contain some organic material, like the Sherman Logs and most others from the Black Forest, tend to be dark).

After about 20 million years or so Pangaea separated into a northern landmass, known as Laurasia, which eventually split into Eurasia and North America, and a southern landmass, known to geologists as Gondwanaland, which evolved into South America, Africa, Australia and Antarctica. Meanwhile, encased in sediment, the Sherman Logs were alternately covered by a shallow tropical sea or salted by huge sand dunes. Sometime during the logs' interment, geologic uplift, erosion and grumbling earthquakes snapped the brittle tree trunks into surprisingly neat sections. In a process that is still going on, the seasonal downpours that once buried the logs began to expose them, by washing away the earth in which they were entombed.

Time passed. The dinosaurs waxed and waned. Ice ages came and went. Primates began to come into their own—and started collecting things. Thirty-five thousand years ago dawn-age naturalists—Neanderthals, in fact—began arranging fossils and lumps of iron pyrite in orderly rows in a cave—perhaps the first museum. In A.D. 40, Caligula, a tough and often bloody-minded Roman emperor, supposedly ordered his troops to collect seashells for posterity—the "spoils of the sea" on the shores of Gaul. And in the autumn of 1878 another commander, the restless General Sherman, spotted "extraordinary specimens" of "petrification" while traversing the new Arizona Territory. From his headquarters in Washington, D.C., Sherman, who was also a regent of the new Smithsonian Institution, wrote to Col. Peter T. Swaine at Fort Wingate,

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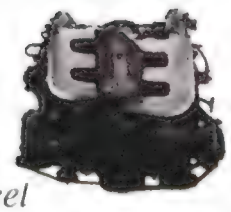

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Petrified trees—found broken into neat sections—were sketched in 1853 by a German artist traveling with the team that discovered Arizona's Black Forest.

New Mexico, telling him to collect some "interesting samples" of "petrifications for the Smithsonian."

The general told the colonel exactly what he wanted. "I would like to secure at as little cost of money as possible two logs, say from 20 to 25 inches diameter and six or eight feet long, weighing near a ton each. . . ." Sherman envisioned two logs that "would stand on end, in either side of the Museum. . . . Therefore," he noted, "they should match somewhat in size" and should "be encased with wood for transportation" and addressed to the Smithsonian "on the easiest terms possible, for the Smithsonian is poor in money, though rich in the treasures of knowledge."

In the spring of 1879 Swaine dispatched Lieut. J. F. C. Hegewald of the 15th Infantry with a sergeant, 12 men and two heavy mule-pulled wagons to Lithodendron Wash. At "Navajoe Springs," Arizona, Hegewald reported, the little expedition left the road, cutting across country about 20 miles toward the head of the creek. There, Hegewald wrote, the party met Navajos with "thousands of head of sheep," who thought it strange "that the 'Great Father in Washington' should want some of the bones of the 'Great Giant' their forefathers had killed years ago when taking possession of the country." Hegewald also noted the Navajo regarded the surrounding lava beds as "the remains of the blood" that ran from the giant's wounds.

Thousands of petrified specimens lay scattered on the ground. Hegewald's men found sections of many half-exposed stone trunks and reckoned the whole trees must have been "150 to 200 feet in length and from 2 to 4½ feet in diameter." After finding a section of tree he "thought would please," and its "match," a section that "saw the light for the first time in ages," Hegewald had the two fossil logs laboriously loaded onto the wagons.

At least in retrospect, Lieutenant Hegewald's collecting of the stone logs had thus far been a piece of cake. But on the return trip, the heavy-laden troop got delayed in rough country and occasionally had to stop "to make a road."

Though petrified wood is all but impervious to normal weather, the Sherman Logs, it turned out, got collected not a moment too soon. The Petrified Forest had survived the sieges of eons, but it was no match for the entrepreneurial and acquisitive spirit of *Homo sapiens.* News of the "stone trees" in Arizona Territory soon began to spread. And no wonder, if people saw the rock-candy descriptions like this one by touring German artist Baldwin Möllhausen, published in 1858: "Trees of all sizes lay irregularly scattered about. . . . great heaps of petrifications gleaming with such splendid colours that we could not resist the temptation" to break off a piece.

According to Maj. John Wesley Powell, later to become director of the U.S. Bureau of Ethnology at the Smithsonian, the Piute believed the petrified logs were spent arrow shafts sent by their thunder god, Shinauav. A few Indians had built dwellings from large blocks of petrified wood. Others chipped out tools and weapons—arrowheads and axes. One man's old dead tree, however, can be another man's fortune. In 1885 it was noted that foreigners had shown particular interest in the trees. An enterprising Russian dealer had paid $500 for a petrified log 28 inches in diameter and 30 inches long; he planned to slice it up to make tabletops. Material from the fallen groves was also snapped up for inlay, paneling, floor tiles, mosaics and jewelry.

Heavier inroads on the precious supply of ex-wood were soon to come. Drake & Co. of Sioux Falls, South Dakota, had trunks hauled out of the forest so chunks could be turned into mantels, clock cases, pedestals, paperweights and other articles of agatized wood for Tiffany & Co. and other eager clients.

The Armstrong Abrasive Company of Denver got the idea of grinding up these trunks to make emery. Armstrong moved its Chicago plant to Adamana, Arizona, a stop on the new railroad line. (Adamana got its name from the only man living there, one Adam Hanna, who prospered as a guide for souvenir-hunting parties bound into remote parts of the Petrified Forest.)

By 1899 a U.S. Geological Survey report declared that if something wasn't done about the situation soon, the ancient forest would go to as "virtual extinction as the buffalo." Seven years later Teddy Roosevelt made the area a national monument, but only in 1962, under President John F. Kennedy, did the Petrified Forest finally become a national park.

Ancient trees like those in Arizona tell us a good deal about the now-lost world in which they flourished. Though they are as hard as quartz, they are pockmarked with telltale signs of life. We can see the tunnels where ancient insects bored into them. Geologist Tim Demko and his colleagues have found hundreds of fossilized hives in the trees, suggesting that an insect resembling the modern bee may have been buzzing about 100 million years before flowers came into existence. These finds, in addition to much fossil evidence of other plants and a variety of animals, have led scientists to conjure up the vision of an entire ecosystem.

Today, the research continues. But its subject matter, apparently, is still disappearing. Despite a guard force of seven National Park Service rangers, and fences, warning signs and the threat of a $275 fine, about 12 to 14 tons of the fossil wood disappears from the Petrified Forest every year. The culprits, according to Chief Ranger Pat Quinn, are usually "your everyday honest visitors" seeking souvenirs.

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Around the Mall and Beyond

By Michael Kernan

Kites aren't just for kids. Ben Franklin knew it, as did the 20,000 kiters and kite fans at this year's 31st annual Smithsonian kite festival, the nation's most prestigious

A section from professional kiter Chris Shultz's 52-kite "train"—of its type, the world's largest—swirls 50-foot tails.

What a scene. I wish I'd gone into manufacturing jeans. Jeans and T-shirts and sneakers literally covered the ground around the Washington Monument for hundreds of yards. Picnic spreads, bicycles, Frisbees, backpacks, strollers, wagons full of baby gear, golden retrievers wearing neckerchiefs (the doggy equivalent of the backward baseball hat), children racing about like drops on a hot skillet, moms setting out the pickles and chips and giving instructions. You get the picture.

And all over the cloudy sky, on this blustery April day, kites of all sizes, colors and designs—from deltas to sharks, from boxes to cylinders, from birds to Buzz Lightyears—are swooping, diving, shivering, swooning, crashing, but mostly soaring, eerily floating at the ends of invisible strings. I could be underwater at some tropical sea garden.

A tiny kitemaster grabs the string and runs with it over the grass. "Wrong way! Wrong way!" shouts his father. "You don't run *toward* it!"

Ah, well. First thing I see is a wonderful arch of classic diamond-shaped kites, 150 of them, half with a yellow sunburst on a blue background, half vice versa. This "train" of kites commemorate's the Smithsonian's 150th anniversary. Margo Brown, a volunteer at the National Air and Space Museum, and her husband, Bevan, have been major forces at the festival since year one. She tells me that the kites in the train are each 18 inches high; they were sewn by members of the Maryland Kite Society, Wings Over Washington and other kite clubs on the Eastern Seaboard. "The arch is very easy to fly," she says. "When it comes down, it doesn't crash, it just floats to the ground."

Now the most spectacular kite of all is zooming into the air: a vast green octopus 100 feet long and 20 feet wide with tentacles that wiggle in the wind. The crowd goes "Ahhhh!"

"It was made by Peter Lynn of New Zealand, a famous kitemaker," reports the man holding the thick green rope, who turns out to be Bruce Flora, who has come up from Orlando, Florida. "It's got 45 pounds of ripstop nylon on a 7,000-pound test line. In a 20-mile-per-hour wind, this octopus only pulls at about 2,000 pounds, but I never take

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CONTRAINDICATIONS ZYRTEC is contraindicated in those patients with a known hypersensitivity to it or any of its ingredients or hydroxyzine. **PRECAUTIONS** Activities Requiring Mental Alertness: In clinical trials, the occurrence of somnolence has been reported in some patients taking ZYRTEC; due caution should therefore be exercised when driving a car or operating potentially dangerous machinery. Concurrent use of ZYRTEC with alcohol or other CNS depressants should be avoided because additional reductions in alertness and additional impairment of CNS performance may occur. **Drug-drug Interactions:** No clinically significant drug interactions have been found with theophylline at a low dose, azithromycin, pseudoephedrine, ketoconazole, or erythromycin. There was a small decrease in the clearance of cetirizine caused by a 400 mg dose of theophylline; it is possible that larger theophylline doses could have a greater effect. **Carcinogenesis, Mutagenesis and Impairment of Fertility:** No evidence of carcinogenicity was observed in a 2-year carcinogenicity study in rats at dietary doses up to 20 mg/kg/day (approximately 10 times the maximum recommended human daily oral dose on a mg/m^2 basis). An increased incidence of benign liver tumors was found in a 2-year carcinogenicity study in male mice at a dietary dose of 16 mg/kg/day (approximately 4 times the maximum recommended human daily oral dose on a mg/m^2 basis). The clinical significance of these findings during long-term use of ZYRTEC is not known. Cetirizine was not mutagenic in the Ames test, and not clastogenic in the human lymphocyte assay, the mouse lymphoma assay, and *in vivo* micronucleus test in rats. No impairment of fertility was found in a fertility and general reproductive performance study in mice at an oral dose of 64 mg/kg/day (approximately 26 times the maximum recommended adult human daily oral dose on a mg/m^2 basis). **Pregnancy Category B:** Cetirizine was not teratogenic in mice, rats and rabbits at oral doses up to 96, 225, and 135 mg/kg/day (or approximately 40, 180, and 215 times the maximum recommended adult human daily oral dose on a mg/m^2 basis), respectively. There are no adequate and well-controlled studies in pregnant women. Because animal studies are not always predictive of human response, ZYRTEC should be used in pregnancy only if clearly needed. **Nursing Mothers:** Retarded pup weight gain was found in mice during lactation when dams were given cetirizine at 96 mg/kg/day (approximately 40 times the maximum recommended adult human daily oral dose on a mg/m^2 basis). Studies in beagle dogs indicate that approximately 3% of the dose is excreted in milk. Cetirizine has been reported to be excreted in human breast milk. Because many drugs are excreted in human milk, use of ZYRTEC in nursing mothers is not recommended. **Geriatric Use:** In placebo-controlled trials, 186 patients aged 65 to 94 years received doses of 5 to 20 mg of ZYRTEC per day. Adverse events were similar in this group to patients under age 65. Subset analysis of efficacy in this group was not done. **Pediatric Use:** The safety of ZYRTEC, at daily doses of 5 or 10 mg, has been demonstrated in 376 pediatric patients 6-11 years of age in placebo-controlled trials lasting up to four weeks and in 254 patients in a non-placebo-controlled 12 week trial. The effectiveness of ZYRTEC for the treatment of seasonal and perennial allergic rhinitis and chronic idiopathic urticaria in this pediatric age group is based on an extrapolation of the demonstrated efficacy of ZYRTEC in adults in these conditions and the likelihood that the disease course, pathophysiology and the drug's effect are substantially similar between these two populations. The recommended doses for the pediatric population are based on a cross-study comparison of the pharmacokinetics and pharmacodynamics of cetirizine in adults and pediatric subjects and on the safety profile of cetirizine in both adults and pediatric patients at doses equal to or higher than the recommended doses. The cetirizine AUC and Cmax in pediatric subjects 6-11 years of age who received a single dose of 10 mg of cetirizine syrup was estimated to be intermediate between that observed in adults who received a single dose of 10 mg of cetirizine tablets and those who received a single dose of 20 mg of cetirizine tablets. **ADVERSE REACTIONS** Controlled and uncontrolled clinical trials conducted in the United States and Canada included more than 6000 patients aged 12 years and older, with more than 3900 receiving ZYRTEC at doses of 5 to 20 mg per day. The duration of treatment ranged from 1 week to 6 months, with a mean exposure of 30 days. Most adverse reactions reported during therapy with ZYRTEC were mild or moderate. In placebo-controlled trials, the incidence of discontinuations due to adverse reactions in patients receiving ZYRTEC 5 mg or 10 mg was not significantly different from placebo (2.9% vs. 2.4%, respectively). The most common adverse reaction in patients aged 12 years and older that occurred more frequently on ZYRTEC than placebo was somnolence. The incidence of somnolence associated with ZYRTEC was dose related, 6% in placebo, 11% at 5 mg and 14% at 10 mg. Discontinuations due to somnolence for ZYRTEC were uncommon (1.0% on ZYRTEC vs. 0.6% on placebo). Fatigue and dry mouth also appeared to be treatment-related adverse reactions. There were no differences by age, race, gender or by body weight with regard to the incidence of adverse reactions. Table 1 lists adverse experiences in patients aged 12 years and older which were reported for ZYRTEC 5 and 10 mg in controlled clinical trials in the United States and that were more common with ZYRTEC than placebo. **Table 1. Adverse Experiences Reported in Patients aged 12 years and older in Placebo-Controlled United States ZYRTEC Trials (Maximum Dose of 10 mg) at Rates of 2% or Greater (Percent Incidence), ZYRTEC (N=2034) vs Placebo (N=1612) respectively:** Somnolence (13.7% vs 6.3%), Fatigue (5.9% vs 2.6%), Dry Mouth (5.0% vs 2.3%), Pharyngitis (2.0% vs 1.9%). Dizziness (2.0% vs 1.2%). In addition, headache and nausea occurred in more than 2% of the patients, but were more common in placebo patients. Pediatric studies were also conducted with ZYRTEC. More than 1300 pediatric patients (6 to 11 years) with more than 900 treated with ZYRTEC at doses of 1.25 to 10 mg per day were included in controlled and uncontrolled clinical trials conducted in the United States. The duration of treatment ranged from 2 to 12 weeks. The majority of reported adverse reactions reported in pediatric patients (6 to 11 years) with ZYRTEC were mild or moderate. In placebo-controlled trials, the incidence of discontinuations due to adverse reactions in pediatric patients receiving up to ZYRTEC 10 mg was uncommon (0.4% on ZYRTEC vs 1.0% on placebo). Table 2 lists adverse experiences which were reported for ZYRTEC 5 and 10 mg in pediatric patients (6 to 11 years) in placebo-controlled clinical trials in the United States and were more common with ZYRTEC than placebo. Of these, abdominal pain was considered treatment-related and somnolence appeared to be dose related. 13% in placebo, 19% at 5 mg and 42% at 10 mg. **Table 2. Adverse Experiences Reported in Pediatric Patients (6 to 11 years) in Placebo-Controlled United States ZYRTEC Trials (5 or 10 mg dose) Which Occurred at a Frequency of ≥ 2% in Either the 5 mg or the 10 mg ZYRTEC Group, and More Frequently Than in the Placebo Group. ZYRTEC 5 mg (N=161), 10 mg (N=215) vs Placebo (N=309):** Headache (11.0%, 5 mg, 14.0%, 10 mg, 12.3%, placebo). Pharyngitis (6.2%, 5 mg, 2.8%, 10 mg, 2.9% placebo). Abdominal pain (4.4%, 5 mg, 5.6%, 10 mg, 1.9%, placebo). Coughing (4.4%, 5 mg, 2.8%, 10 mg, 3.9%, placebo). Somnolence (1.9%, 5 mg, 4.2%, 10 mg, 1.3%, placebo); Diarrhea (3.1%, 5 mg, 1.9%, 10 mg, 1.3%, placebo). Epistaxis (3.7%, 5 mg, 1.9%, 10 mg, 2.9%, placebo). Bronchospasm (3.1%, 5 mg, 1.9%, 10 mg, 1.9%, placebo). Nausea (1.9%, 5 mg; 2.8%, 10 mg; 1.9%, placebo); Vomiting (2.5%, 5 mg, 2.3%, 10 mg; 1.0%, placebo). The following events were observed infrequently (less than 2%), in either 3982 adults and children 12 years and older or in 659 pediatric (6 to 11 years) patients who received ZYRTEC in U.S. trials, including an open adult study of six months duration, a causal relationship with ZYRTEC administration has not been established. **Autonomic Nervous System:** anorexia, urinary retention, flushing, increased salivation, dry mouth. **Cardiovascular:** palpitation, tachycardia, hypertension, cardiac failure. **Central and Peripheral Nervous Systems:** paresthesia, confusion, hyperkinesia, hypertonia, migraine, tremor, vertigo, leg cramps, ataxia, dysphonia, abnormal coordination, hyperesthesia, hypoesthesia, myelitis, paralysis, ptosis, twitching, visual field defect, syncope, dizziness. **Gastrointestinal:** increased appetite, dyspepsia, abdominal pain, diarrhea, flatulence, constipation, vomiting, ulcerative stomatitis, aggravated tooth caries, stomatitis, tongue discoloration, tongue edema, gastritis, rectal hemorrhage, hemorrhoids, melena, abnormal hepatic function, eructation. **Genitourinary:** polyuria, urinary tract infection, cystitis, dysuria, hematuria, micturition frequency, urinary incontinence. **Hearing and Vestibular:** earache, tinnitus, deafness, ototoxicity. **Metabolic/Nutritional:** thirst, dehydration, diabetes mellitus. **Musculoskeletal:** myalgia, arthralgia, arthrosis, arthritis, muscle weakness. **Psychiatric:** insomnia, sleep disorder, nervousness, depression, emotional lability, impaired concentration, anxiety, depersonalization, paronirria, abnormal thinking, agitation, amnesia, decreased libido, euphoria. **Respiratory System:** epistaxis, rhinitis, coughing, bronchospasm, dyspnea, upper respiratory tract infection, hyperventilation, sinusitis, increased sputum, bronchitis, pneumonia, respiratory disorder. **Reproductive:** dysmenorrhea, female breast pain, intermenstrual bleeding, leukorrhea, menorrhagia, vaginitis. **Reticuloendothelial:** lymphadenopathy. **Skin:** pruritus, rash, dry skin, urticaria, acne, dermatitis, erythematous rash, increased sweating, alopecia, angioedema, furunculosis, bullous eruption, eczema, hyperkeratosis, hypertrichosis, photosensitivity reaction, photosensitivity toxic reaction, maculopapular rash, seborrhea, purpura, skin disorder, skin nodule. **Special Senses:** taste perversion, taste loss, parosmia. **Vision:** blindness, loss of accommodation, eye pain, conjunctivitis, xerophthalmia, glaucoma, ocular hemorrhage. **Body as a Whole:** Increased weight, back pain, malaise, fever, asthenia, generalized edema, periorbital edema, peripheral edema, rigors, leg edema, face edema, hot flashes, enlarged abdomen, nasal polyp, pain, pallor, chest pain, accidental injury. Occasional instances of transient, reversible hepatic transaminase elevations have occurred during cetirizine therapy. A single case of possible drug-induced hepatitis with significant transaminase elevation (500 to 1000 IU/L) and elevated bilirubin has been reported. In foreign marketing experience the following additional rare, but potential severe adverse events have been reported: hemolytic anemia, thrombocytopenia, orofacial dyskinesia, severe hypotension, anaphylaxis, hepatitis, glomerulonephritis, stillbirth, and cholestasis. **DRUG ABUSE AND DEPENDENCE** There is no information to indicate that abuse or dependency occurs with ZYRTEC. **OVERDOSAGE** Overdosage has been reported with ZYRTEC. In one adult patient who took 150 mg of ZYRTEC, the patient was somnolent but did not display any other clinical signs or abnormal blood chemistry or hematology results. In an 18-month-old pediatric patient who took an overdose of ZYRTEC (approximately 180 mg), restlessness and irritability were observed initially; this was followed by drowsiness. Should overdose occur, treatment should be symptomatic or supportive, taking into account any concomitantly ingested medications. There is no known specific antidote to ZYRTEC. ZYRTEC is not effectively removed by dialysis, and dialysis will be ineffective unless a dialyzable agent has been concomitantly ingested. The acute minimal lethal oral doses in mice and rats were 237 and 562 mg/kg, respectively (approximately 55 and 265 times the maximum recommended human daily oral dose on a mg/m^2 basis). In rodents, the target of acute toxicity was the central nervous system, and the target of multiple-dose toxicity was the liver. **DOSAGE AND ADMINISTRATION Adults and Children 12 years and older:** The recommended initial dose of ZYRTEC is 5 or 10 mg per day in adults and children 12 years and older, depending on symptom severity. Most patients in clinical trials started at 10 mg. ZYRTEC is given as a single daily dose, with or without food. The time of administration may be varied to suit individual patient needs. In patients with decreased renal function (creatinine clearance 11-31 mL/min), patients on hemodialysis (creatinine clearance less than 7 mL/min), and in hepatically impaired patients, a dose of 5 mg once daily is recommended. **Children 6 to 11 years:** The recommended initial dose of ZYRTEC in children aged 6 to 11 years is 5 or 10 mg (1 or 2 teaspoons) once daily depending on symptom severity. The time of administration may be varied to suit individual patient needs. 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chances. Besides, the rope's five-eighths-inch thickness makes it a lot easier—and safer—to hold."

Oh no, he insists, it's not hard to get the thing up. Today, two colleagues move the kite up and down to force air into the wide hole at the octopus's forehead. When the head fills with air, it gets rigid and becomes an airfoil. "But on a windier day, I can launch it alone. I've had it 300 feet up but it looks smaller there, so I keep it at about 100 feet."

Running a monster kite is a special skill. Flora has worked with Lynn's largest kite, probably the world's biggest, a trilobite fossil design 164 feet long, 72 feet wide and 30 feet thick. In a 3-mph wind he can handle it himself. At 5 mph he calls for a heavy anchorage. "I've watched a kite lift the back of my VW van off the ground. So when I work with a huge kite like Lynn's trilobite, I find a seven-ton anchor, like a flatbed wrecker—with a pickup truck on the bed. The pull accelerates very rapidly," he says. "So I gather," I say.

Flora inaugurated the trilobite in 1995 at Epcot Center, where his company, Kiteman Productions, does kite extravaganzas, like kites with strobe lights and fireworks mounted on them. "I'm a lucky guy," says Flora. "I've made a living from kites for the past 15 years. My next big project is to design a kite show for a new extension of Tokyo Disneyland."

Down in the competition and demonstration areas, people are busy. Awards are given for various shapes (box, sled, train . . .), team efforts and the funniest kites. To compete, kites have to be hand-made by the entrant and should reach 100 feet or more for one minute.

Here's a family hard at work. Kelly and Danny Burke of Great Falls, Virginia, are dressing their kites, built at a Smithsonian Associates' workshop held two weeks before the festival. Kelly's went right up, but Danny's slid off-balance and refused to rise the required 100 feet. Kelly is nearly 11, Danny is 9, and their parents, Tim and Meg Burke, are skillfully meting out congratulations and sympathy, respectively.

I overhear a festival volunteer offering an elderly participant some assistance in getting his kite into the air. He politely says, "No thanks." The man, Isaac Kearney, who lives here in Washington, explains that his red kite, made of wrapping paper and lightweight cypress wands, rarely needs any help. "It's a kite that just wants to fly." Kearney started making kites as a small boy growing up in New Orleans. "We were poor, and made all of our own toys. I've been to about 25 of these Smithsonian kite festivals." Today, he's here with his son Lawrence and his grandson Dominick (p. 38).

I run into Margo Brown again and she tells me that this year's festival theme is "Evolutions in Flight." The winner of the theme award is Bob Price, a retired physicist-engineer from Burtonsville, Maryland. His "rotor" kite is a contraption made of ultralight fiberglass tubes and nylon panels. The lipped panels are mounted on a long axle rod so they all spin in the same direction, thereby taking advantage of lift provided by the Magnus effect, the aerodynamic property of spinning objects, such as tennis and golf balls and artillery shells, that affects their trajectory.

"Paul Garber would have loved it," Brown tells me. Garber worked at the Smithsonian for 70 years and was

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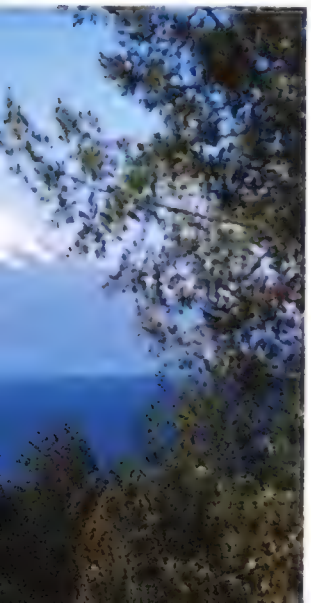
William E. Bonini, Ph.D., is a Professor of Geophysics and Geological Engineering, Emeritus as well as a Professor of Civil Engineering and Operations Research, Emeritus, Princeton University and the recipient of the 1992 President's Award for Distinguished Teaching.

*Depart February 27 Return March 15

Dr. Jeffrey A. Cole

Dr. Jeffrey A. Cole is a Latin Americanist historian, specializing in colonial Perú/Bolivia, early 19th century Mexico, and 20th century Argentina. He has taught Latin American studies at leading institutions including Cornell University and Smith College.



Depart March 13 Return March 29

Dr. Barney Pipkin

Dr. Bernard Pipkin, Ph.D. is Professor Emeritus at the University of Southern California and author of three textbooks in geology and oceanography. His latest book, *Geology and the Environment* (1996) is a best-selling introductory textbook used at over 150 colleges.

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Below: The spectacular Andean chain snakes down the western coast of South America.

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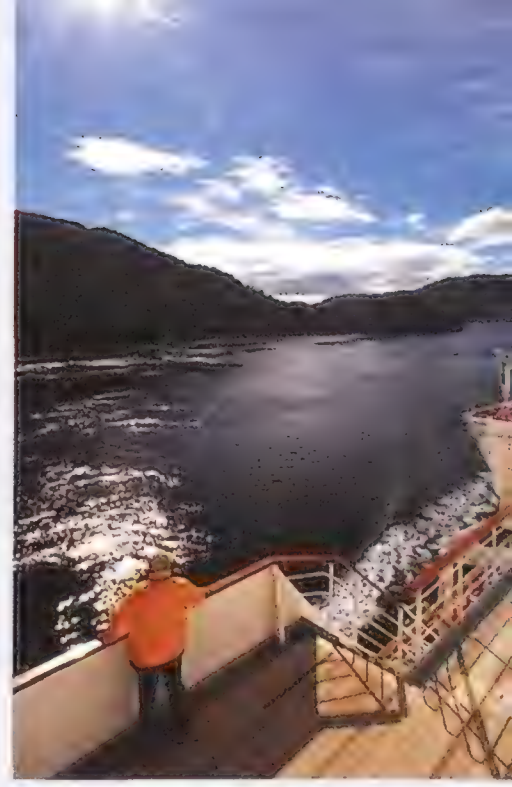

The Odysseus offers stunning views of the mount and glaciers which rise sharply from the sea

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PUERTO NATALES/KIRKE NARROWS
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Punta Arenas is a thriving sub-Antarctic city set along the Straits of Magellan. Sightseeing possibilities include a nearby penguin rookery, o a tour of the Pioneer Museum and the town of Punta Arenas.

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This afternoon *Odysseus* navigates the green waters of the Beagle Channel. Charles Darwin sailed the channel aboard *H.M.S Beagle* during the British exploration of Tierra del Fuego in 1832.

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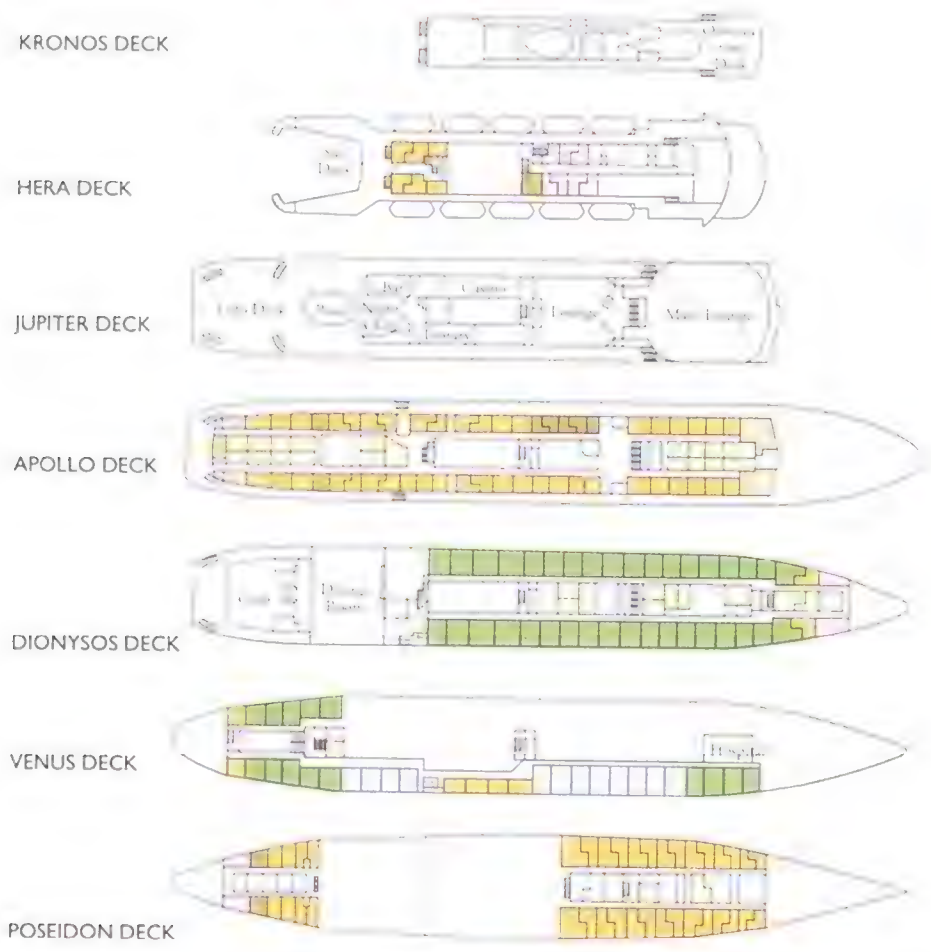

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the patriarch of the National Air and Space Museum and the kite festival (SMITHSONIAN, July 1970, May 1997). "Like Franklin, Garber realized early on that kites aren't just toys, that they have practical and scientific uses. Franklin first became interested in kites as a youth when he used one to pull himself across a pond while floating on his back. The Kite Festival Committee is looking forward to 2002, when we'll celebrate the 250th anniversary of Franklin's famous lightning experiment."

Suddenly a beautiful rack of 12 varicolored kites swoops high into the air, then curvets, swirls, dives and planes, while its 12 long tails fingerpaint the sky. Chris Shultz of Premier Kites in Laurel, Maryland, is operating the kite stack with both hands, fighting the wind for all he's worth. The crowd goes "Ooooh!" "These 12 kites, each four feet tall, are just a section of my 52-kite train," says Shultz. "No one has ever flown a longer train made of this type of kite."

More demonstrations: traction kites pull men in buggies across the ground. The announcer swears that people have races like this on 50-mile courses, with speeds up to 50 mph. He also swears that one master he knows flies kites indoors. Am I going to believe that?

Brown later explains that you can fly a kite made of tissue-thin nylon fabric by just walking along with it. Hearing this reminds me that my favorite part of kite flying is when the wind at ground level is weak and puffy. You have to tease the kite high enough to catch the treetop breezes, and you play it like a trout, easing off, snubbing up, ducking a tall oak branch, until the kite finally soars in triumph above everything. That's when you can dream of being up there yourself. Indeed, Bruce Flora tells me about people harnessed to paragliders who launch themselves into flight from level ground with a cable attached to a motorized winch. "If they catch thermals in the right way, they can stay up for hours," he says.

I look up and see that someone has his kites dancing a ballet to music high over our heads. But now it's time for the rokkaku kite battle. Rokkaku are six-sided kites, and they battle by chafing and tangling one another's lines. Pretty soon the air is full of these kites, including a Smithsonian entry that gets sawed down rather quickly. The announcer is giving us the play-by-play.

"You can make 'em sweep side to side, or you can drop 'em down fast, or pull in and make 'em zoom up. There's a lot of jockeying. Uh-oh, that one's gone, heading for 17th Street. Hey, the Smithsonian and the Keystone [an entry from the Keystone Kiters, a Pennsylvania-based group] are stuck together. Uh-oh, there they go down . . ."

Across the Monument grounds, far from this furious action, people are just playing their kites, watching them ride niftily on nothing. Jane Becker, a Park Service employee at Manassas Battlefield, bought three miniature ones for her granddaughter, who is off in the distance now, running a ten-inch job into the air.

I find a couple of Martin Lester-designed kites, made in England and man-shaped. "They're tricky to keep up," comments Rich Miller of Crofton, Maryland. "Anything with a real wide wingspan and narrow body—the aspect ratio makes them tricky. They're all woodened out, so you have to replace a lot of

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"Woodened out," eh? I know some people like that.

Miller has been coming here for ten years. The wind is great on this famous open hillside, he says, though a bit swirly today. A good kite wind should be steady as the trades; actually, autumn is the best season for kite flying.

But then, a lot of people here are repeaters. In one nest of fluttering banners, bikes, coolers, folding chairs and piles of equipment, I discover the American Kitefliers Association. Kiting is a booming sport (SMITHSONIAN, May 1989), and there are various practical uses (SMITHSONIAN, June 1982). Of course, in our American way we have been organizing kiting as fast as people join up. Everywhere I see the badges, shirts and hats of different clubs and the signature kites of the mushrooming kite shops and factories. The Smithsonian event has helped make the Washington area a mecca for kite lovers.

The announcer sounds excited about Jeff Levine's long-tailed delta kite. "It's purple, pink, green and black with two tails off the wingtips," he shouts. "With that 17½-foot wingspan this can be really spectacular, but you want to stay away from it, too; it has quite a bit of force to it when it gets up."

Sure enough, the thing abruptly does one of those suicide loops so familiar to us amateur kiters, darting straight up and then straight down. Levine, who came here from Boothwin, Pennsylvania, for the event, pulls it out of its dive before it brains anyone.

Now and then, indeed, a rokkaku killed in battle falls on a spectator, but I don't think anybody gets hurt. (From the festival brochure: "Do Not Walk Under Stunt Kites! These kites regularly move at speeds in excess of 60 miles per hour, and stunt kites can cut and burn you!") On the other hand, the kite hospital—run by John Strong, with Iris Reynolds as head nurse—had more than 50 paper and plastic patients before noon. "This crowd is bigger than I can remember for a long time," says Strong, who has been the festival kite doctor for more than 20 years.

I once made a kite eight feet high, tied it to some wrapping twine and launched it from a windy California hilltop. It never occurred to me to wear gloves. If I had been able to hold on without shredding my hands, I probably would have taken off.

One thing I did learn at this 31st annual kite festival, to think about when my grandchildren are old enough: a kite's proportions are extremely variable, but there are some conventions. The crosspiece of a traditional diamond-shaped kite should be about 20 percent of the way down from the top. Often, kites don't really need tails to fly, notes Brown. "They're just vain. They like to be pretty."

Not everyone here is flying a kite. I come across a man named Felix Cartagena who has a bubble machine. A fan blows through an arc of those plastic bubblemakers that come in little jars, and billows of bubbles trail through the air for yards and yards, causing small children to shriek with delight. A sign announces: "Not for sale, not for rent, just for fun!!"

"Been making these machines since '83," says Cartagena. "I only do it part-time, but I always make room for the Smithsonian festival. Last weekend I used up 18 gallons. Today"—he squints into the wind—"this is a 15-gallon day."

He buys the standard commercial mix, but in 100-ounce containers, not little jars. "When I come around to the shop they say, 'Uh-oh, he's here again.'"

Now the skein of bubbles wafts to heights that some kites, even, haven't reached. "I get paid in smiles and giggles," Cartagena says. "A few minutes ago a man came up to me and said, 'I'm 88 years old. I think this is wonderful. I want to shake your hand.'" Wait a minute, here comes the giant octopus again, rearing into the sky with certain authority. Little kites skitter out of the way. The crowd goes "'Rayyyy!"

While a giant octopus swims through the sky, a tot and his mount enjoy Felix Cartagena's machine-made bubbles, and three generations of Kearney family kitemakers show off their handiwork.

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Smithsonian Highlights

Planning a Smithsonian visit?

Receive a free Associates' planning packet. Write Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560, or call 202-357-2700 (voice) or 202-357-1729 (TTY), 9 A.M. - 5 P.M., Monday-Friday; 10 A.M. - 4 P.M., Saturday-Sunday. *Note:* Parking near the Smithsonian is limited. The Metrorail subway system, convenient to all museums, has parking available at some stations (details in packet).

Begin your visit at the Smithsonian Information Center's Associates' Reception Desk—open 9 A.M. - 4 P.M. daily—in the Castle. Special materials await you there. The Court dining room in the National Museum of Natural History is permanently closed. Associates may now avail themselves of a discount on table service at the National Air and Space Museum's Wright Place restaurant, open 11:30 A.M. - 3 P.M. daily.

Museum Hours

Smithsonian museums are generally open 10 A.M. - 5:30 P.M. daily, except December 25. Hours at the National Zoo are 10 A.M. - 6 P.M. daily for buildings, and 6 A.M. - 8 P.M. for grounds.

Smithsonian Website

The Smithsonian home page on the World Wide Web (http://www.si.edu) offers on-line information about exhibitions, collections, events and products.

Art Night on the Mall

The Freer, Sackler, African Art and Hirshhorn museums will be open Thursday evenings until 8 P.M., May 29 through August 28. The Ripley Center's International Gallery and the Hirshhorn's Full Circle Café will also be open.

Festival of American Folklife

Life in the Mississippi Delta, African immigrants in Washington, D.C. and sacred music will be the focus of the Smithsonian's 31st annual Festival of American Folklife, to be held on the Mall, June 25-29 and July 2-6, from 11 A.M. to 5:30 P.M. daily. Dance parties featuring traditional music will be held each evening from 5:30 to 7, and special concerts will take place from 7 to 9 nightly, except July 4.

'America's Smithsonian'

Birmingham-Jefferson Civic Center, Birmingham, Alabama (May 29-July 12) Centerpiece of the Institution's 150th anniversary celebration, the traveling exhibition of Smithsonian treasures continues its tour. *Note:* Admission is free, but passes are required. Advance passes are available for a service fee of $3.50 each by calling 1-800-913-TOUR.

Special June Exhibitions, Events

Heye Center, National Museum of the American Indian (New York City)
Agayuliyararput (Our Way of Making Prayer): The Living Tradition of Yup'ik Masks (through August 17) Exhibition showcases more than 200 Yup'ik masks.
See *Highlights Continued*, page 44.

A damselfly some 25 million years old is immortalized in amber at NMNH show.

Cooper-Hewitt, National Design Museum (New York City)
The Jewelry of Tone Vigeland (June 17-August 24) The striking designs of Norway's foremost contemporary jeweler.
Do-It-Yourself Architecture for the Great Outdoors (June 24-October 19) Display of contemporary tent styles embodies many themes of modern architecture.

National Museum of American History
American Families in Photographs (through September 1) Photographs from the Smithsonian's collections reflect the continuity and change in American family life over the past 150 years.
Jackie Robinson and the Integration of Major League Baseball (runs indefinitely) Showcase display explores the historical significance of Robinson's career.
Science in American Life Permanent exhibition tracks advances and discoveries in science over the past 125 years.

National Postal Museum (Located next to Union Station on Capitol Hill)
What's in the Mail for You! New permanent exhibition offers an innovative look at the direct mail industry.

National Museum of Natural History
Amber: Window to the Past (June 6-September 1) Exhibition organized by the American Museum of Natural History in New York examines the scientific and artistic significance of nature's "organic jewel." *Note:* Tickets are required; for information on fees, call (202) 357-4577.
Butterfly Habitat Garden New permanent exhibition represents four habitats: wetland, meadow, wood's edge and urban backyard.
The Gems and Minerals Hall Gallery is closed for renovation until September 1997. The famous Hope Diamond is on view on the second floor of the Rotunda.

National Zoological Park
Amazonia Science Gallery New permanent exhibition looks at the work of Smithsonian biologists worldwide.

National Air and Space Museum
Mission to Mir (11:30 A.M., 1:40 and 3:50 P.M. daily) New Imax film takes viewers aboard the first permanent space station—Russia's *Mir* (p. 42).
Women and Flight (June 14-September 1) Images of contemporary women aviators by NASM staff photographer Carolyn J. Russo.
Space Race Permanent installation traces the long competition in space between America and the former Soviet Union.

Shown with available equipment. *J.D. Power and Associates 1996 Automotive Performance, Execution and Layout (APEAL) Study. Study based on a total [illegible] consumer responses. ** Excludes other GM vehicles. †Always wear safety belts, even with air bags. ©1996 General Motors Corporation. All rights reserved. GM, GMC, Yukon and the GMC logo are registered trademarks of General Motors Corporation. Buckle Up, America.

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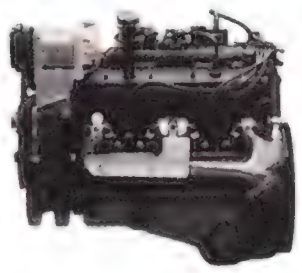

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Freer Gallery of Art
At the Margins (opens June 4) Exhibition explores the style of asymmetrical border embellishment used in Mughal Indian painting between the 16th and 19th centuries.
The Seven Thrones of Jami: A Princely Manuscript from Iran (opens June 28) Illustrations from a 16th-century Persian mystical poem by Jami.

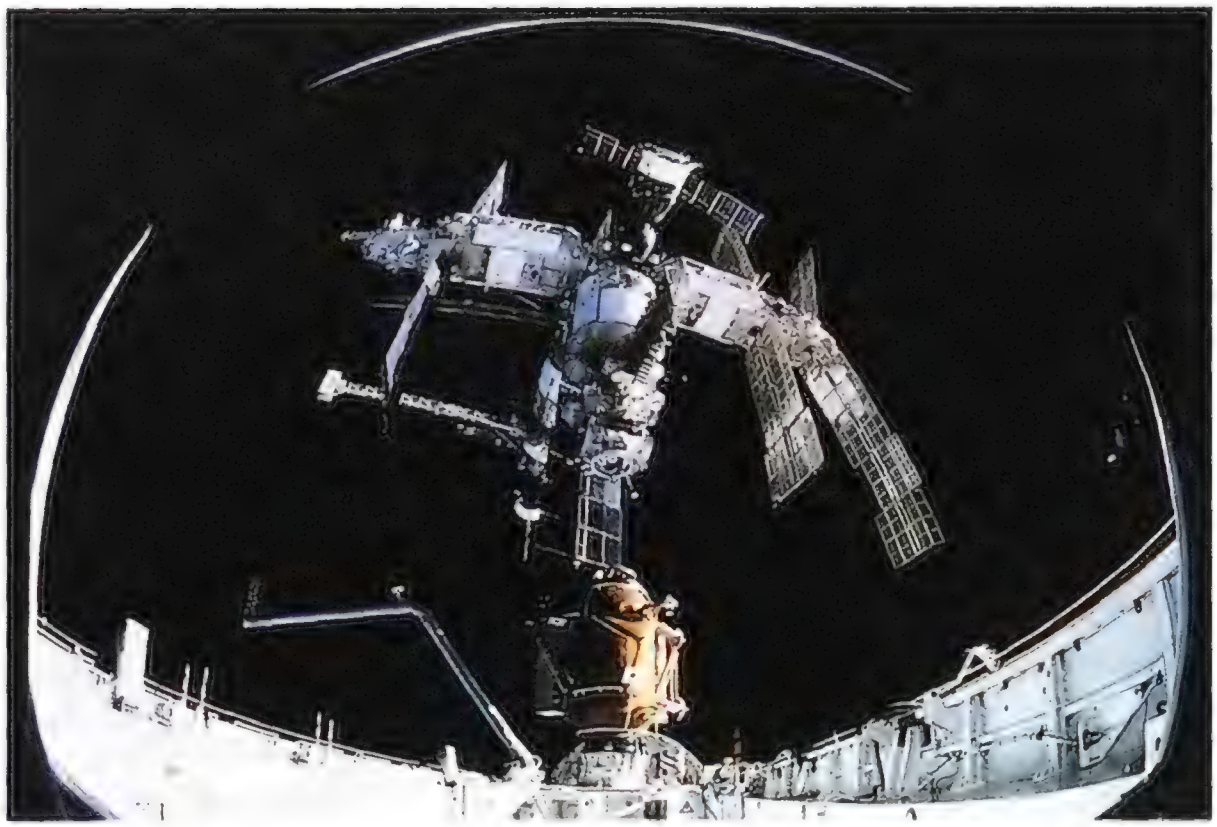
Arthur M. Sackler Gallery
Bridge: Illusion in Clay (through July 6) A 60-foot-long, life-size ceramic sculpture, titled *Bridge*, by contemporary Taiwan artist Ah-Leon.
The Jewel and the Rose: Art for Shah-Jahan (through February 1998) Works illustrate the splendor of Indian artistic expression during the reign of Shah-Jahan (r. 1627-58), builder of the Taj Mahal.

National Museum of African Art
Treasures from Tervuren: Selections from the Belgium Royal Museum for Central Africa (June 25-October 19) Show features 125 objects from the world's greatest collection of Central African art.
Adire: Resist-Dyed Cloths of the Yoruba (through August 17) Indigo resist-dyed textiles from southwestern Nigeria.

Hirshhorn Museum & Sculpture Garden
The Hirshhorn Collects: Recent Acquisitions, 1992-1996 (June 4-September 7) Works by Jean Dubuffet, Andy Warhol.
The Collection in Context: Raymond Duchamp-Villon's "The Horse" (through November 30) One-gallery display explores how the work of this French sculptor echoed his belief in the machine.

National Portrait Gallery
Red, Hot & Blue: A Salute to American Musicals (through July 6) Exhibition spotlights the major personalities who created the American musical theater.
Recent Acquisitions (through July 6) Show features a mezzotint of Benjamin Franklin by Charles Willson Peale and photographs by Rollie McKenna of poets Elizabeth Bishop, Sylvia Plath.

National Museum of American Art
Miriam Schapiro: A Woman's Way (through July 20) Installation presents key works from the 1970s to the 1990s by the leader of the feminist art movement in America.
Singular Impressions: The Monotype in America (through August 3) Exhibition takes a look at the work of artists who have explored the monotype process.



Russia's *Mir* space station is seen from the space shuttle *Atlantis*, just prior to their docking, in the new Imax film now at NASM's Langley Theater.

Renwick Gallery
Reinstallation of the Permanent Collection (opens June 20) Thematic reinstallation celebrates gallery's 25th anniversary.

Arts and Industries Building
The Jazz Age in Paris, 1914-1940 (through July 13) SITES exhibition explores the early jazz movement, born in America and embraced around the world.
Life on the Road: The Photographs of Milt Hinton (through July 13) Images of fellow musicians by bassist Milt Hinton.
Stories of the People (through August 10) Artifacts from the collection of the National Museum of the American Indian.
Discovery Theater
Live theater for young audiences. For information call (202) 357-1500 (voice or TTY) weekdays, 10 A.M. - 4 P.M.

International Gallery, S. Dillon Ripley Center
American Voices: Latino Photographers in the United States (through September 28) Photographs and artworks from the 1930s to the 1990s by top Latino artists.

Anacostia Museum
Museum Renovation The museum is closed until the fall of 1997.

Exhibition catalogs

Catalogs available currently include:
The Living Tradition of Yup'ik Masks ($60/$40 paper)
Singular Impressions: The Monotype in America ($60/$35 paper)
Red, Hot & Blue: A Salute to American Musicals ($39.95 cloth)
To order, send check or money order to Smithsonian Museum Shops, P.O. Box 1140, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $4.50).

The Smithsonian Associates, Resident Program

To become a member, or for fee and ticket information, call (202) 357-3030. June events include:
Peter Bogdanovich: Interviews with Hollywood Masters (June 18; 8 P.M.) The award-winning film director discusses his interviews with eminent directors.
The Life of the Cosmos (June 26; 8 P.M.) Leading cosmologist Lee Smolin lectures on his new theories about the universe.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities in the United States and abroad. To sponsor a show, write SITES, Smithsonian, Washington, D.C. 20560. Here are some June exhibitions:
• Cleveland, Ohio (June 28-October 12) *Earth 2U, Exploring Geography*, Cleveland Museum of Natural History.
• Saco, Maine (June 7-August 3) *Mysterious Manatees*, Maine Aquarium.

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A celebration of Yup'ik culture

They used to wear masks when they danced, made out of wood. . . . different masks, like foxes, maybe seals, reindeer, fish, all kinds of birds. . . . If you see that kind of dance, maybe you will never forget it.

—Jasper Joseph, Yup'ik elder

Masked dancing and storytelling have long been pivotal components of the ceremonial life of the Yup'ik people of southwestern Alaska. Traditionally performed inside the communal men's house during festivals, Yup'ik dances feature elaborate masks that make tangible the world of helping spirits. These ceremonies, which focus on the interactions between humans, animals and the spirit world, embody a view of the universe wherein right action in the past and present produce abundance in the future. One ceremony ensured the return of animals in the coming harvest season. Another re-created past encounters with spirits to elicit their help in the future. Although masks are used infrequently today, elders remember their powerful presence and honor them as emblems of cultural pride.

Now more than 200 of these 19th- and early-20th-century masks can be seen in a major traveling exhibition at the National Museum of the American Indian's George Gustav Heye Center in New York City. Organized by the Anchorage Museum of History and Art, and the Anchorage Museum Association, "Agayuliyararput (Our Way of Making Prayer): The Living Tradition of Yup'ik Masks" presents these remarkable objects in the context of their importance to and use within the Yup'ik community. After closing in New York on August 17, the show will come to the National Museum of Natural History in Washington, D.C., October 24-January 2, 1998.

"This unprecedented exhibition," says the show's curator, Ann Fienup-Riordan, "tells the story of Yup'ik masks—the materials from which they were made, the shamans who directed their creation, the stories and songs they embodied, the dances in which they were presented, the men who collected them and the museums that now cherish them. More importantly, this exhibition is a celebration of the Yup'ik people and their unique relationship to the world around them, offering us a window on their past and a sense of the urgency they attach to carrying this past with them into the future."

Diane M. Bolz

Collected in the early 1900s by trader A. H. Twitchell, mask represents an *amikuk*, a creature who lives in the ground and sometimes takes human form. Toothy mouth and feather halo are typically Yup'ik.

Continued on page 46

"She's sort of wrinkled
and scowls a lot.
She hasn't stopped
screaming since
the day she arrived.
The dogs are *terrified*."

There are stories behind those masks. There is something of significance to say about every little thing about them.

—Mary Mike, Yup'ik elder

Loon mask (right), from Old Hamilton, recalls a traditional Arctic tale about a man who went blind. Tired of working on the animals he brought home, the man's wife blinded him. Crawling to a nearby lake, the man climbed aboard a kayak with two strangers. Abruptly the kayak submerged. After several dunkings, the man's sight returned. Looking back at the lake, he saw only two large loons.

Paddle-shaped mask from Goodnews Bay hung from the ceiling at dances.

Flying-swan mask evokes shaman's spirit to ensure return of swans, geese.

Bird mask from Qissunaq was worn in dance also featuring a white fox mask.

Performers wore these large killer whale masks vertically along their bodies, with the heads pointed down. Eyeholes in the masks provided lines of sight.

Mask portraying Negakfok, the cold weather spirit, dates from early 1900s.

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Remote Keyless Entry	Std.	Opt.	Opt.	Opt.
Air Filtration	Std.	N/A	Incl.	N/A
Price	$19,368	$22,586	$19,825	$22,895

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By Jake Page

Ranchers form a 'radical center' to protect wide-open spaces

Fire, modified fencing and a 'grassbank' are rejuvenating rangeland. Where woody weeds once grew, the grass is stirrup high

Photographs by Ted Wood

Some people didn't think it was a good idea that Warner Glenn photographed the jaguar instead of killing it.

Conventional wisdom in ranch country is that you don't announce the presence of an endangered species on your land, and especially on land leased for grazing from one or another federal agency like the U.S. Forest Service or the Bureau of Land Management. Those people, and Fish and Wildlife, and the state agencies—all those involved in the overlapping mosaic of jurisdiction and regulation—are only going to put even more restrictions on what you can do with your land. So a lot of ranchers throughout the West, if confronted by an endangered bird or mammal, or even a frog, go by the dictum: "Shoot, shovel and shut up."

To understand why Warner Glenn broke ranks on the morning of March 7, 1996, when he made the first photographs ever taken of a free-ranging jaguar in the United States, you need to know something about the man, his family and what he and some of his neighbors had already been up to.

In a nutshell, they'd set out to redefine the entire manner in which ranchers, environmentalists, and federal and state land agencies deal with the still vast tracts of open country in the West. For the most part, it has been a noisy story of obloquy and accusation, with environmentalists seeing cows as demonic and ranchers as the devil's spawn and ranchers thinking the same about environmentalists and nosy scientists. Both sides were furious with the feds and the states either for doing 1) not enough to rid the world of cows, or 2) too much, while the forces of obvious Good and self-evident Evil fought it out with America's proper destiny and the only rightful way of life hanging in the balance. As a general rule, when things get lined up like that, you're going to get heat but not a whole lot of light.

People start circling the wagons and suing one another, and at worst, you get crazy threats, physical confrontation, even outright violence.

Warner Glenn and his wife, Wendy, run a ranch of some 15,000 acres (one of the smaller ones in the area) in the southeastern corner of Arizona, right on the border with Mexico. It is a country of scrubby and hostile Sonoran Desert flora—cholla cactus, mesquite, the wayward stems of ocotillo—and sparse grasses that stretch for miles in the San Bernardino Valley. Warner and Wendy's place is called Malpai Ranch; the word "malpai" is derived from the Spanish for "badlands."

All around this huge and relatively flat valley, ranges of mountains rise into the sky like rows of carnivorous teeth. It is classic basin and range country, the valleys filled with what has eroded off the mountains over the eons—rocky, sandy soil that would drive a Minnesota dairy farmer to Prozac.

Warner Glenn counts some 100 people as neighbors.

Hunter, hounds and mountain lion grace a sign pointing to Malpai Ranch (top). Nearby, owner Warner Glenn (at right, with his dog Rifle) shot the first photograph of a live wild jaguar ever taken in the United States (above).

They live on 35 ranches found on both sides of the New Mexico-Arizona border where it meets up with Mexico. The ranches make up a pyramidally shaped zone of about one million acres—an area not quite as big as the state of Delaware and bisected longitudinally by the Peloncillo Mountain range, which reaches an elevation of 6,500 feet. They brought telephones into the Arizona side of this area only about 12 years ago, and the ranches there used generators for electricity until 5 years ago. Now, as Bill McDonald, owner of the Sycamore Ranch and a fifth-generation rancher, says wryly, "We've got telephones, faxes, e-mail, too, and we're just as messed up as everyone else."

Even so, it is a supernally quiet place—the enormous spaciousness matched by an oceanic silence.

Over on the New Mexico side of the Peloncillos lies a major focus of neighborly attention. This is Gray Ranch, a single landholding of 321,000 acres bisected by its own mountain range, the Animas Mountains (SMITHSONIAN, February 1992). Back in the late 1980s, the locals were up in arms at the rumors that the federal government wanted to purchase the place and turn it into the Animas National Wildlife Refuge, attracting a possible 65,000 visitors a year.

In 1990, the Nature Conservancy bought Gray Ranch (for a reported $18 million) as part of its Last Great Places campaign. This hardly calmed the fears of the neighbors, the Nature Conservancy being seen by some as a secretive nest of moneyed environmentalists based in Washington, D.C. (it's actually based across the Potomac in Arlington, Virginia), drawn to the Gray not by its still remarkably healthy grazing lands but by the ranch's six different ecozones and nearly 20 endangered and threatened species.

At about this point, there happened a wondrous confluence of events—or maybe destinies—that no one would have predicted.

For one thing, the Nature Conservancy had begun to think that buying up precious places and sequestering them as fenced-off refuges was not the only or the best way to handle its mission. Perhaps private landowners (even—gasp!—ranchers) needed to be brought into the picture, especially in such huge open regions as the Southwest borderlands.

Meanwhile Warner Glenn and his neighbors were acutely aware of the bad odor in which cattle ranchers were held by the outside world, the danger being the resulting pressure for laws and regulations that would put them out of business altogether, forcing them to sell out to developers and see the open country subdivided into the ten-acre ranchettes that were already springing up

New Mexico transplant Jake Page is also a mystery writer. The fifth in a series set in the Southwest, A Certain Malice, *is scheduled to appear in January.*

over the horizon. "Even if ranchland is overgrazed," Warner Glenn says, "it can recover. But not from subdivision. Then it's gone for good."

One of the neighbors was a man named Drum Hadley, a relative newcomer to the area, having owned and worked a ranch in Guadalupe Canyon at the southernmost end of the Peloncillos for only some 20 years. Hadley was hardly your standard rancher, being an heir to the Anheuser-Busch fortune and a poet. But Drum Hadley was no ordinary heir and poet.

After graduating from the University of Arizona, he had headed south with little more than a saddle, spent the next five years as a cowboy in Mexico, New Mexico and Arizona, and returned to become a serious if oddly visionary rancher. He moved fences out of the arbitrary geometric lines of the old homesteading days and had them follow the contours of the land. He could then keep his cattle out of the riparian areas on his ranch, providing alternative waters in areas that had been minimally grazed. The cattle, no longer tempted to nose around for the "candy" of delicate forbs in the soft ground of the canyon bottoms, actually began to increase their selling weight.

In a friendly dig, local rancher Bill McDonald says Drum Hadley was concerned that "literary people had turned against cattle," so Hadley happily attended a meeting of neighbors in 1993 at Warner Glenn's place to discuss the situation. Ranchers, McDonald said, "were losing ground socially and politically, seen to be raping the land."

Glenn, McDonald and some of the neighbors were thinking that, instead of reacting defensively to a hostile world and each wave of new land regulations, maybe they could take an active stance and try to make something of the common ground shared by ranchers, environmentalists and government agencies—an interest in, even a love for, open country. In the climate of the time, this was a radical notion. Soon enough, they were actually inviting scientists, representatives of the land agencies and Nature Conservancy officials to meet with them, and staking a claim to what they came to call "the radical center." And so was born the Malpai Borderlands Group, a nonprofit organization of nine members (including eight local ranchers) devoted to restoring and maintaining "the natural processes that create and protect a healthy, unfragmented landscape to support a diverse, flourishing community of human, plant, and animal life in our Borderlands Region."

That made fire an early priority. In this very droughty region where, especially in summer, lightning strikes with nearly the regularity of a metronome, fire breaks out with frightening frequency and the rule has long been simple: suppress it as soon as possible. But, people were beginning to realize, fire was one of the natural processes that created the grasslands over the eons, and without it, woody, shrubby species like mesquite spread at the expense of grass.

In 1993, area ranchers had fashioned a "fire map" that would show the Forest Service and other agencies the places where ranchers wanted fire suppressed, those where they wanted fire to burn freely and those they wanted to be consulted about whenever a fire broke out. While the state agencies were delighted to have such input, when the Malpai group sought to organize a burn on one ranch a year or so later, it took eight months for all the agencies concerned to cut away the accretions of their own red tape. For example, even though every endangered species in the region quite obviously evolved with fire, the U.S. Fish and Wildlife Service sees its mission as protecting an endangered species' remaining habitat, not deliberately singeing it.

To overcome such obstacles, the Malpai group needed information, scientific information, and this was something the Nature Conservancy could help them get. They voted John Cook, the Conservancy's point man for Gray Ranch, to be coexecutive director of their group (along with Bill McDonald—later to be replaced by Bill Miller) and allied themselves with the University

Drum Hadley relaxes in a tuft of bear grass on Gray Ranch, opposite. Fire finished the cholla cactus above.

The Malpai Borderlands Group's approach is paying off as grass returns to areas that once were choked by woody invaders. On Gray Ranch, native grasses are thriving after a natural fire near San Luis Pass in 1994.

of Arizona, among other such institutions, inviting research on their lands. Meanwhile, even before the Malpai group got under way, Leroy McCarty, the former sheriff of Hidalgo County, Warner Glenn and others had been encouraging Drum Hadley in his notion of taking Gray Ranch off the hands of the Conservancy and assuring it stayed in private hands.

Even at a $5 million discount (the ranch was now in easement, protecting it from subdivision), $13 million was a heart-stopping sum to come up with, but Hadley's son Seth—in his mid-20s, a recent ranch owner in the Peloncillos with an interest in protecting the ranching way of life—had the idea that if the family set up a foundation it could be done. It was. Drum Hadley, his son and his mother formed the Animas Foundation with the express purpose of encouraging "the practice of a land ethic to preserve, heal, restore and sustain wildlands and waters, their inhabitants and cultures." Gray Ranch had its first nonabsentee landlord since the 1880s when an erstwhile Texas Ranger named Michael Gray ran some cattle there.

Drum Hadley is a big fan of fire. There were several places on the ranch where overgrazing and other factors had led to a major invasion of mesquite, cholla, turpentine bush and snakeweed, and so little grass that there wasn't enough fuel for a fire to sustain itself. So he fenced off some of these areas—such as 1,662 acres near San Luis Pass looking out over a former Pleistocene lake that is now a single pasture big enough to hold three Manhattan Islands. Before long, enough grass came back to provide fuel, and lightning struck and a fire burned, killing some 20 percent to 30 percent of the unwanted plants (with microorganisms later killing off much of the rest that the fire had wounded). In three years the place was back to lush, stirrup-high grass.

One day not long ago, Hadley was sitting on a rise called Hogback to the east of the Animas Mountains. He was leaning against a big tuft of bear grass in lieu of a rocking chair, and the only sound for miles and miles around was the sighing of four or five different breezes that fluttered into each other just there. A bit earlier he had come across a little flock of Gould's turkey, one of five wild turkey subspecies and a bird found only on Gray Ranch, in the Peloncillos and in southeastern Arizona, where it has been reintroduced. Some coyotes broke the silence with a sociable bit of yipping, sending Hadley's young Brittany spaniel scuttling back to him, and then they fell silent. Just east was where the cowboys used to gather together thousands of head for shipping. Drum Hadley looked out at the jumble of mesquite, sage and cactus that had come to dominate the canyons and slopes and said, "It's gotten so I hate to look at land that hasn't been burned."

It was in such a peaceful setting that Hadley came up with the idea of a "grassbank," now one of the major innovations of the Malpai group. Asked how he thought that up, Hadley the poet says, "I'm not that familiar with economics, but I am familiar with metaphor."

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Bill Miller, president of the group's board, moves his cattle through mesquite, catclaw and white thorn acacia. He wears horsehide gloves for protection. This pasture is sorely in need of fire to get rid of unwanted plants.

Briefly, the concept is this: if one of the member ranchers suffers a bad season—say a prolonged drought on his place that might force him to sell off his herd at a potentially crushing loss—he can move his cattle to Gray Ranch, where grass is abundant. The value of this grass to the rancher is computed, and he then puts an equally valued amount of his land in easement, prohibiting future subdivision. The easement is held by the Malpai Borderlands Group which, in turn, raises the money from its contributors and outside donors to pay back the "bank."

So far, four ranches have availed themselves of this revolutionary banking idea, and one owner, upon being queried about its value to him, said that he had gotten to "rest" his ranch, add about 150 pounds to each calf's weaning weight and increase the calf crop from 60 percent to 90 percent. The chief expense is that his children could inherit a slightly devalued ranch intact.

The grassbank remains a fragile idea with many implications (and down-the-line costs) still to be worked out, but it is nonetheless enticing. One rancher up near the town of Animas, New Mexico, who is not a member of the group, is eyeing his own ranch as a potential grassbank—thinking of it as a kind of IRA account against the day that he is too old to actually ranch the land. This greatly pleases Drum Hadley, planter of metaphors in the hardscrabble soil of the borderlands.

Wildlife fencing is another practice at Gray Ranch. Young Seth Hadley, who is executive director of the Animas Foundation, points out that raising the lower strand of wire on a fence lets young pronghorn escape when they're being chased by a coyote, and lowering the top strand an inch or two keeps leaping deer's hooves from getting caught. "The cowboys," he jokes, "worried that calves could get under the fence, too, but I told 'em that was cowboy job security."

Other initiatives by the Malpai group have begun paying off. Reseeding has taken place on one ranch, with several more scheduled, and the few fires that have been permitted are beginning to have their predicted effects, encouraging the land agencies to cooperate further. In one instance, a population of threatened Chiricahua leopard frogs was found in what the locals call a "water" on the ranch of Matt and Anna Magoffin, just east of the Glenns' place. The water, responding to the season and a severe drought, was drying up, and the Magoffins hauled in 1,000 gallons of water a week to replenish this previously unheralded bit of frog habitat.

It occurred to the Magoffins to move some of the frogs' egg masses to other waters on their place, getting a few more populations under way. It also occurred to them that the ecology club at the Douglas, Arizona, high school might raise leopard frogs in the classroom for later distribution to other ranch waters. This took a fair amount of persuasion, what with state wildlife personnel being given to upholding the letter of the law that says basically that no one can fool around with a protected species.

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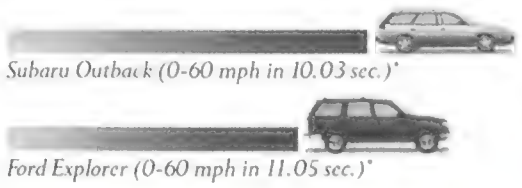

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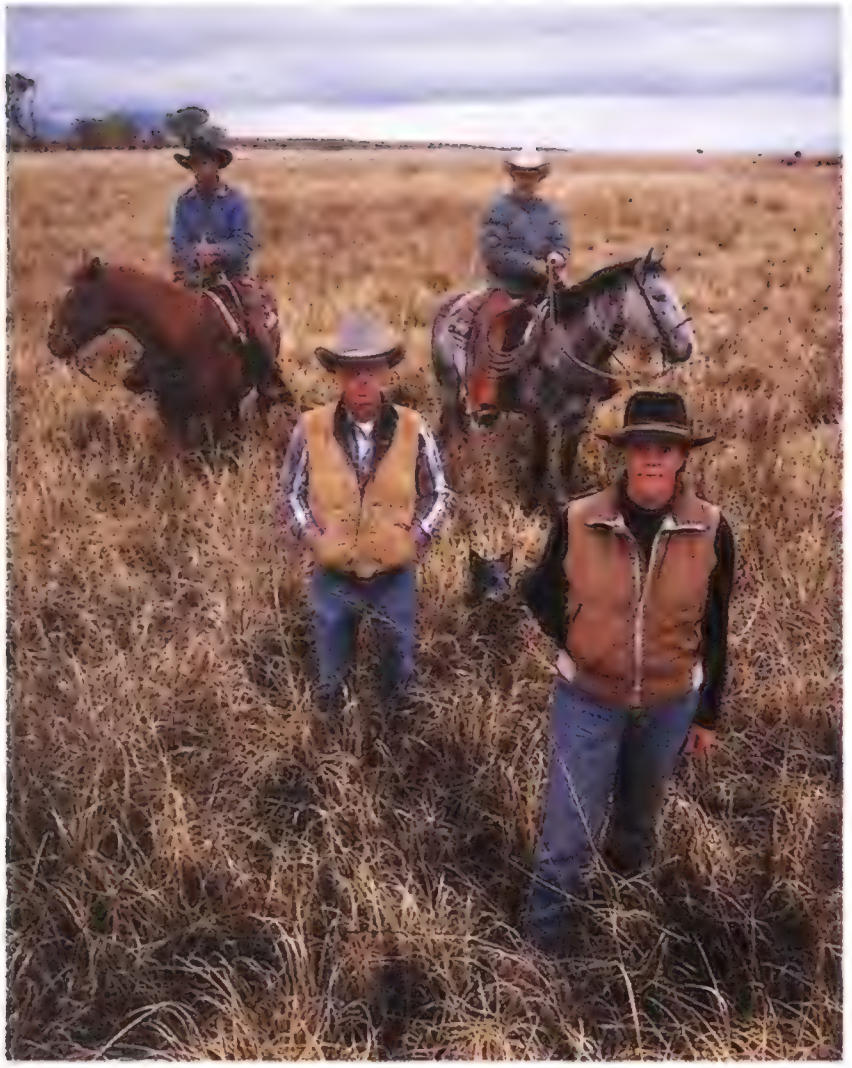


These ranchers are taking advantage of a barter system that allows them to rest their own pastures.

In the spring of 1997, the ecology club had a dozen aquariums full of leopard frog tadpoles, ready for distribution. At the same time, Arizona Game and Fish drilled a well and, along with the Malpai group, financed a windmill for another promising water for frogs on the Magoffin ranch.

Not all the neighbors in this million-acre borderlands area are convinced that the Malpai group and its cozy relationship with conservationists is a good thing. Several of the 35 ranches in the area are not part of the group, and most ranchers are doing what they have always done when something new crops up: watching.

For Judy Keeler, a third-generation rancher in the area, a chief concern about the Malpai group is its close affiliation with the Nature Conservancy. In a series of articles for a local newspaper, Keeler voiced deep-rooted suspicions about the Conservancy's "hidden agenda" for her local bootheel area, although this agenda "has yet to be disclosed." (The "bootheel" is where New Mexico dips about 25 miles down into Mexico.)

Having placed itself in the "radical center," the Malpai group has also had to face the scrutiny of environmentalists who question the role of Gray Ranch's newest owners. While the Animas Foundation is a nonprofit organization, it's still at heart a ranching enterprise. And many hard-liners, Bill McDonald points out, "have a tough time seeing any form of ranching as an environmentally sustainable activity."

To add to the confusion, there were even rumors that the easements from the grassbank were held not by the Malpai group but by the Nature Conservancy or by the federal government. To quell these suspicions—and to correct errors big and small that were perpetrated by magazine and newspaper articles about the group—Wendy Glenn recently issued a fact sheet on the Malpai group's behalf. The easements, it reiterates, are held by the Malpai group: if the Conservancy was engaged in a pernicious landgrab, then why did it sell off the largest parcel in the region, Gray Ranch? At the same time, Wendy Glenn says emphatically, "the Conservancy has a lot of the pieces we ranchers need."

One class of "pieces" is science, and a variety of scientific studies are under way, many of them involved with monitoring ecological change, past and future. On Gray Ranch, 110 individual sites are constantly watched, and the ranch is producing a highly detailed, computerized Geographical Information System with everything from changes in vegetation to the make of pipe in the wells. Elsewhere, a 20-year study near the Malpai ranches by ecologist James Brown of the University of New Mexico has shown that these grasslands, even if free of cattle, experience considerable change in vegetation as a result of many other factors. In certain areas, for example, kangaroo rats can have as great an effect on grass as cattle, perhaps more so.

Brown says a picture is now emerging of a change in climate in the region that has taken place over the past 20 years—an increase in the amount of winter precipitation and possibly a slight warming of winter temperatures. This, he says, "is consistent with man-caused global warming, the heating of the Pacific Ocean, which is where the region gets its moisture."

More to the point, he explains, weedy and woody plants are "cool-season active" and are helped by the added winter moisture and temperature, as are the pine and juniper woodlands at higher elevations. So the grasses (which are warm-season active) could be getting squeezed from both directions. "You've got the strange situation," he says, "where more moisture is leading to what appears to be desertification."

Brown, who is president of the Ecological Society of America, is another who is convinced of the importance of keeping the rural people on the land in order to preserve it and maintain the area's "amazing biodiversity." As he pointed out in a 1997 *Conservation Biology* journal article, written with none other than rancher Bill McDonald, the extinction of species in the area in the past century cannot be pinned on cattle grazing. Riparian species suffered mostly from the diversion of water for irrigation and from introduced exotic species. And many mammals that were decimated as varmints or game are beginning to return.

Brown admits cheerfully that some of his colleagues

"think I've sold out, but that place down there is one I love as much as any in the world. I want to preserve it. And, as I've told the ranchers, I'm not there to sugarcoat anything for anyone. Our purpose as scientists is to get the facts as best we can, analyze them, and give our best thoughts on managing the lands to agencies and the ranchers."

Over the previous year, Warner Glenn had seen the tracks up in the Peloncillos and took them to be a big tom lion. On March 7, 1996, he and two guides, including his daughter Kelly, were taking a lion hunter into the neighborhood of Hog Mountain, from which you can see nothing but open country—a frozen sea of blue mountain ridges and tawny valleys stretching away in every direction.

That morning, Warner smelled the scent of skunk, saw the big, odd-shaped track again and heard his six dogs take off baying. A lion, he thought, who'd dined on a skunk. After a long chase, he spotted the cat—not a lion but a jaguar! The dogs had it bayed in a cleft in the rocks, and Warner, fearing for his dogs' safety, ran up with his camera held near his shoulder, shooting without the viewfinder. Within ten feet of the jaguar, he saw it come for him. The dogs intervened, and in the melee, Warner managed to get his dogs called back, allowing the jaguar to escape. It headed south, toward Mexico, whence it had come.

Instead of keeping this to himself, Warner published his photographs in a booklet he wrote about the experience, called *Eyes of Fire*, and he helped the Malpai group set up a fund to pay any ranchers whose livestock might suffer from jaguar attack. After a series of public meetings, the Arizona Game and Fish Department worked with the community to draft a conservation agreement as an alternative to listing the jaguar as an endangered species. In early 1997, it was submitted to the U.S. Fish and Wildlife Service for consideration.

Meanwhile, Warner wondered how long it would be before the cat returned. "Not long, I hope," he says. And Wendy Glenn says, "We took it as a sign—seeing the tracks and then finally seeing the jaguar. A sign that we were all doing something right."

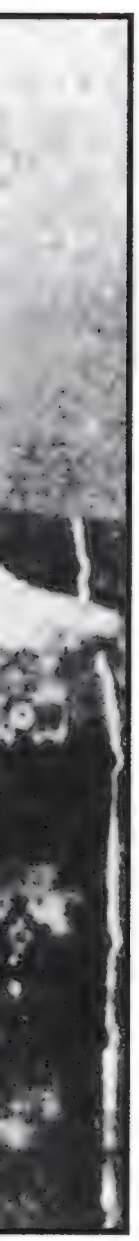
Only a windmill and cattle tank break the expanse where Gray Ranch slopes up to the Sierra San Luis. Cattlemen and conservationists agree that dividing such land into ten-acre ranchettes would be a mistake.

All the Presidents' pooches

"If you want a friend in Washington," Harry Truman once said, "get a dog." Indeed, from George Washington, who bred foxhounds (and who returned British general Howe's dog, a POW, under a flag of truce), to George Bush, whose spaniel Millie's book outsold his own autobiography, our harried chief executives have found friendship and solace in dogs. The story of these Presidential companions is told in a new book, *First Dogs*, by Roy Rowan and Brooke Janis, published this month by Algonquin Books of Chapel Hill. The cast of characters includes every breed from wolfhounds to beagles, Airedales to poodles, plus a generous helping of affectionate mutts. Of course, there has been a downside—a spot of wee-wee on the White House carpet, the occasional nip at a visiting diplomat's trousers, the tendency of Jefferson's briards to dine on his sheep—but on the whole, dogs have burnished the image of the Presidency, suggesting that the incumbent, who holds such awesome power, is just regular folks at heart. It's impossible to think of FDR without thinking of his inseparable companion, Fala. Richard Nixon probably saved his Vice Presidential candidacy—and ultimately his ascendency to the highest office—with his impassioned speech about his wife's cloth coat and his cocker spaniel, Checkers. Lyndon Johnson got himself in trouble with animal lovers when he lifted his pet beagles, Him and Her, by the ears for photographers, but he was known as a dog fancier. His special friend was Yuki, a stray that daughter Luci found hanging around a Texas gas station. Johnson was apt to yowl duets with Yuki in the Oval Office, as he does above with Ambassador David K. E. Bruce, an appreciative audience. All in all, it's enough to make one wonder if Bill Clinton shouldn't change his Socks.
Don Moser

It's hard to tell who's more delighted at the reunion—Ronald and Nancy Reagan as they alight from the Presidential helicopter or First Spaniel Rex as he rushes to greet them.

FDR's Scottie, Fala, was the President's constant companion, accompanying him to the signing of the Atlantic Charter and causing a flap when, it was claimed, Roosevelt sent a destroyer to fetch him when he was left behind on a trip to the Aleutians. Fala, who stood at attention during the playing of the national anthem, is buried near his master in Hyde Park, New York. Continuing clockwise: A hirsute Rutherford Hayes stands impassively by as spaniel Dot demands attention from his wife, temperance advocate "Lemonade Lucy." Warren Harding's Airedale, Laddie Boy, had his own hand-carved chair to sit in during Cabinet meetings. For a birthday party, the Hardings invited all the neighborhood dogs, providing a cake of dog biscuits topped with icing. In his Presidential campaign, Herbert Hoover softened his stiff-collared image by posing with his German shepherd, King Tut. The first First Dog to be photographed was Lincoln's Fido—yes, Fido. If he appears disconsolate, it may be because he was unsettled by the hullabaloo of campaigning, so much so that Lincoln left him in Illinois upon moving to the White House. Of his many dogs, Teddy Roosevelt's favorite was Skip, a terrier TR found while hunting in the Grand Canyon. He admired Skip's pluck in confronting a wild bear and let the dog share a good book with him.



At upper left, George Bush leads springer spaniel Millie and her brood on a reconnaissance of the White House lawn. Millie was termed "ugliest dog" by the *Washingtonian* magazine, but her book, dictated to First Lady Barbara Bush, was on the best-seller list for 29 weeks. Above, at a White House Easter Egg Roll, Grace Coolidge parades white collie Prudence Prim in a festive bonnet while financier Andrew Mellon (center) and a perhaps disapproving Silent Cal look on. At lower left, the Kennedys pose with a virtual K-9 corps of family dogs at Hyannisport; included are Irish spaniel Shannon, Welsh terrier Charlie, German shepherd Clipper, and the pups of Pushinka, who was a gift to Caroline from Soviet premier Nikita Khrushchev. At center, Gerald Ford, absorbed by weighty matters of state, comforts and is comforted by his golden retriever, Liberty.

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By Richard Wolkomir

Near and far, we're waving the banner for flags

Across time and distance, these colorful emblems fluttering in the breeze are symbols steeped in our history and our cultures

My neighbor flies Old Glory from his front porch. But patriotism does not explain his other flag. It shows a scarlet cardinal perched beside a white peony blossom. Is my neighbor an amateur ornithologist? A horticulturist? Whatever his cardinal-cum-peony flag means, it is his personal banner, as if he were earl of a one-acre earldom. But he flies the U.S. flag higher. It must mean his earldom is a fief, and he is loyal to his suzerain.

I have seen no Tibetan prayer banners in our little New England town, flapping out blessings into the mountain air. But we do hoist other flags of many sorts, all beaming messages, which is what flags do. I now tune in these flag broadcasts because I have been talking to Whitney Smith, the world's top vexillologist.

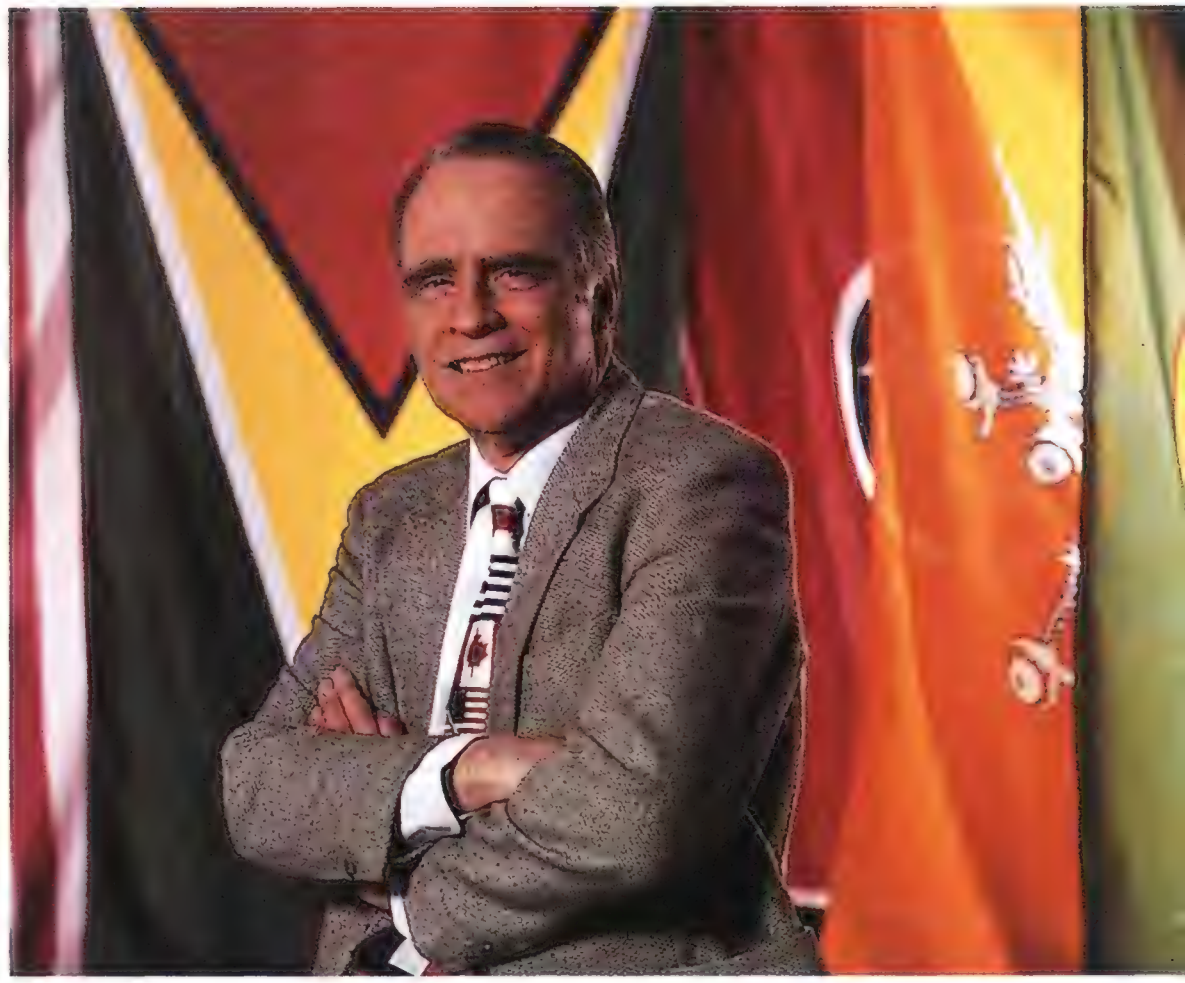
Smith invented the term himself. That was 40 years ago, when he happened to be his suburban Boston high school's only flag addict. He searched his Latin text for the word for flag, *vexillum*. He added *-ology* (from the Greek for "study of"), and so invented "vexillology," the scholarly study of flags. Now he is a bit defensive about his coinage.

"I've been criticized because it combines Latin and Greek, a barbarism, but I say, 'I was a teenager!'" Smith told me. Vindication has come. Except for a few countries, like Germany, which gets by with *Flaggen-und Fahnenkunde*, "flag and banner knowledge," most languages now use "vexillology."

Recently, the National Museum of American History summoned Smith and 49 other experts to advise on maintaining the Star Spangled Banner. It was the flag

At dawn each morning in Cape May, New Jersey, Jay Schatz hoists Old Glory outside his Victorian-era inn.

Across America, households are displaying flags from the Stars and Stripes to whimsical seasonal banners.



Even as a 12-year-old boy, Whitney Smith was consumed by an interest in flags. Trained as a political scientist, he left academia to direct his Flag Research Center, in Winchester, Massachusetts. His collection boasts some 2,000 flags.

that inspired Francis Scott Key to write the national anthem, when he saw it flying over Baltimore's Fort McHenry, under British attack during the War of 1812. At the meeting one of the panel's flag experts waxed eloquent on the symbolic importance of this national icon. "Without the symbolism being kept alive," he averred, "it [the flag] is simply a collection of hairs from long-dead sheep." Whitney Smith readily concurred. "This flag is equivalent to a holy object," he added. "It has reverential status!"

Vexillologists do ponder technicalities, such as flag stitching or the correct display of a warship's ensign (largest, showiest flag aboard, hoisted at the stern). But when they study flags, they do not see mere cloth. They see encrustations of history. And they see symbols, which can be as obvious as the Jamaican royal flag's four golden pineapples or murkily recondite. Guyana's flag, for instance, has a field of green. "That is for the country's lush fields and forests," explains Whitney Smith. Traversing the green field is a golden triangle ("for the thrust forward into a golden future"), with an overlapping red triangle ("red for Guyana's struggle for independence from Britain, achieved in 1966"). The triangles also symbolize stability, because engineers consider triangle-based structures strong.

Smith can speak authoritatively about the Guyanese flag because he directs the Flag Research Center, in Winchester, Massachusetts. Except for part-time assistants, he is the entire staff, advising clients ranging from the United Nations, various Olympic committees and the U.S. Department of Defense to MGM and Disney. But he speaks with particular authority about Guyana's flag because he was the person who designed it.

He was a 20-year-old Harvard student when he read that British Guiana was poised to change its spelling and become independent Guyana. He wrote to the premier, asking about the new flag. We have none, the premier wrote back. Do you have ideas? Smith dashed off a design and mailed it. But politics aborted Guyana's birth. Six years later, when he was a married graduate student, Smith learned that independence was finally coming. He wrote to the government to ask again about the flag. He received a letter with a picture. "That's my flag!" he told his wife.

His design had won a contest, the new government assuming he was a Guyanese emigrant. "I had kids 3 and 4 years old, no money, I was teaching, and so I couldn't go to Guyana for the independence celebration," Smith told me. "But when Prime Minister Forbes Burnham visited the United States, I did go to a White House luncheon—I was at the last and lowliest table, with the governor of the Virgin Islands and a former official of the New York Stock Exchange, but the tables were arranged in a circle, so I was sitting right next to Prime Minister Burnham and President Johnson."

Smith was already a vexillologic veteran, flagstruck since his childhood in Lexington, Massachusetts, where his mother ran a home business making balaclavas and his father, an attorney, worked as an insurance company investigator. Flags obsessed him beginning at age 6,

Author Richard Wolkomir reports that he now spots flags wherever he travels, from a trip across his Vermont town to reporting forays around the country.

when his father returned from World War II and presented him with a small U.S. flag for Patriots' Day, celebrated on the third Monday in April to commemorate the Revolution-opening battles of Lexington and Concord. His father also took him to the Lexington green to see the annual display of state flags. "When I was 8 or so, I'd go down there before Patriots' Day and tell the highway department crew how to set up the flags in the proper order of admission to the Union," Smith remembers. "The workers always looked as if they wished this kid would go home to his sandbox."

At age 10, Smith felt compelled to write to Greenland's Chamber of Commerce to express dismay over the island's flaglessness. "None of the books had a flag for Greenland," he remembers. "How could such a big country have no flag?" Back came a letter from Greenland's governor, who apparently decided so heartfelt an inquiry required handling at the highest level. Greenland, he wrote, was a Danish colony and it flew Denmark's flag, the Dannebrog, an off-center white cross on a field of cherry red.

Even back then Smith might have told the governor, had he asked, that—although it was not until the American Revolution that true national flags began to flap—the Dannebrog may have the oldest lineage of any national flag. Vexillologists have traced its design back at least 600 years, and its legendary origins are even older. Every Danish schoolchild knows that on June 15, 1219, as pagan Estonians lambasted the Christian army of Danish king Waldemar II, the Danish bishops prayed for divine help. The Dannebrog wafted down from the sky. Waldemar prevailed. Ever since, Danes have venerated their flag, even hanging it on their Christmas trees.

Young Whitney Smith did not send that information to the governor, or tell him the flag's likelier origin was as a war flag of the Holy Roman emperors, who regarded Denmark as a vassal state. But that was the sort of vexillologic database the governor had tapped into.

"I remember when I was 9 years old, in a dentist's waiting room, reading a magazine for Chevy owners," says Smith, "I saw an article about a Connecticut physician who collected flags, and it was probably the most exciting thing that had ever happened to me." Smith was a demon flag collector himself. On July 27, 1952, the *Boston Globe* ran a story on him, showing the serious-looking boy with swept-back hair and glasses amid his collection of 222 flags. "His teachers often borrow them for school exhibits," the article noted.

Smith studied political science at Harvard, graduating magna cum laude in 1961 and then earning master's and doctoral degrees in political science at Boston University, where he became an assistant professor. But the passion for flags persisted.

In 1970 Smith quit teaching to devote himself to his Flag Research Center, founded in 1962, in Winchester.

From the familiar maple-leaf-emblazoned banner of our neighbor Canada to the striking emblem of Guyana (designed in 1960 by Whitney Smith), a flag embodies a nation's identity and culture.

Icons of crown and country, flags have long served as potent symbols. This 15th-century Italian fresco shows a Byzantine emperor's victory over a Persian king. Standards (behind) represent clashing imperial forces.

In 1972, he moved into the tan stucco house that serves as the center's home today.

Smith believes that, in fact, we are all living in a vexillologic golden age, a time of unprecedented flag hoisting. "It used to be only official entities had their own flags, but now people fly Halloween flags or 'It's A Boy!' flags," says Smith. Flags now support causes, too. "There's an ecology flag," he explains. And he points out that, in 1937, a handful of Congressmen passed on to constituents some worn-out flags that had flown over the U.S. Capitol. A minor industry was spawned. "Last year crews of two or three flew more than 116,000 flags from the Capitol, running them up and down three flagpoles, every 90 seconds," Smith says. These flags, purchased in bulk by members of Congress, have been bought by citizens across the land.

I decided to test his "golden age" hypothesis. I was driving across our little town to visit a hospitalized relative, and I noted every flag I saw en route. Mostly they were Old Glorys. A Volkswagen-Mazda-Isuzu dealership flew Germany's black-red-gold tricolor beside the U.S. flag. For no clear reason, it also flew the British Union Jack. And it flew a maple leaf, despite the nonavailability of Canadian-brand cars. But it conspicuously did not fly Japan's blood-red rising sun. Maybe there is a Japanese flag shortage.

Businesses flew fabric signs inscribed "Open." Two of our restaurants, a fancy Italian bistro and a humble pizzeria, flew Italy's flag. Many homes hoisted personal flags, expressing the local earldom's culture, such as veneration of autumn (a flag showing scarlet maple leaves, a brown acorn, an orange pumpkin), or fealty to a higher cause ("Red Sox!!!"). Whitney Smith told me that such "decorative" flags, unknown 20 years ago, are now the flag industry's fastest-growing sector. Estimates of U.S. annual flag sales range from $75 million up to $500 million.

Continuing my flag tour, I passed the National Guard armory, which flew our state flag, showing things Vermontish: a white pine, grain sheaves and a cow. I finally parked beside a pole flying a flag inscribed "Central Vermont Hospital."

Whitney Smith has thought a lot about why we fly so many flags of so many kinds. He points out that even children constructing sand castles often hoist stamp-size pennants on toothpicks, to flutter from the tiny battlements. Flags, he told me, come flapping up from deep in our prehistory.

"Flags dating back five millennia are sophisticated, suggesting elaboration over a long time," he says, adding that the earliest known extant flag, unearthed in Iran, is 5,000 years old. It is metal, on a metal pole topped by a metal eagle, a finial still used with U.S. and German flags. Such vexilloids—objects that function as flags—are humanity's oldest flags, extending back into the prehistoric fog. Smith cites 5,500-year-old predynastic Egyptian pottery that pictures boats festooned with vexilloids, such as carved elephants held aloft on poles, or a fourth-century vexilloid from Iran comprising two rectangular shields, each shield divided into four triangles, alternatively white and red, atop a staff that is striped white and red.

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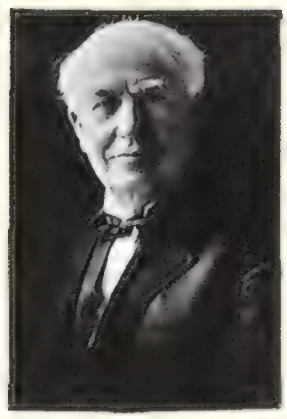

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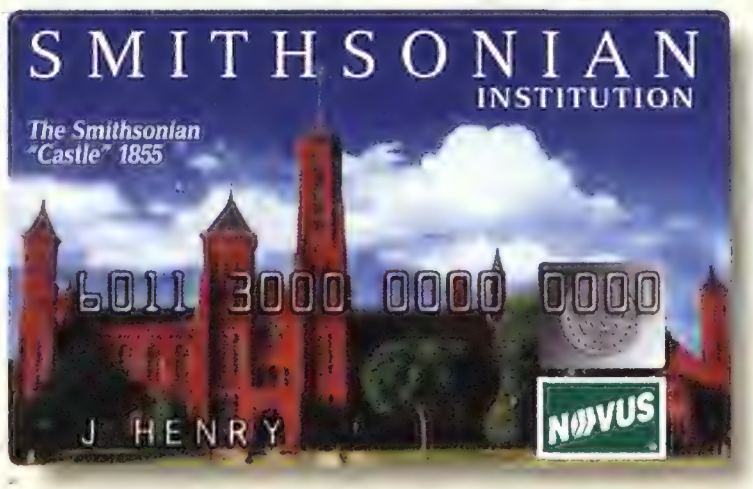

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Over the centuries, Smith says, flags have proved particularly useful symbols because they are cheap and easily made. Lots of people can carry them, lots of people can see them. And they can be emotionally charged.

Smith cites the recent South Carolina dispute about flying the Confederate battle flag below the U.S. and state flags over the state capitol. Depending on your own point of view, the Confederate battle flag either honors glorious sacrifice for states' rights, or it stands for slavery and racism.

"Flags express the unity and identity of one group as against all others," Smith explains. That can be ugly—Hitler's swastika flag embodied the dark side of vexillologic symbolism. But flags also can allow frail humans to feel bolstered by higher powers. "So the flag becomes an externalization of the fears and hopes, the myths, and the magic of those who carry it," says Smith.

Baseball fans learned a lesson on vexillologic power during Game Two of the 1992 World Series. With the Atlanta Braves set to play the Toronto Blue Jays in Atlanta, the U.S. Marine color guard hoisted the Canadian flag upside down during the singing of the national anthems, and an international incident nearly ensued.

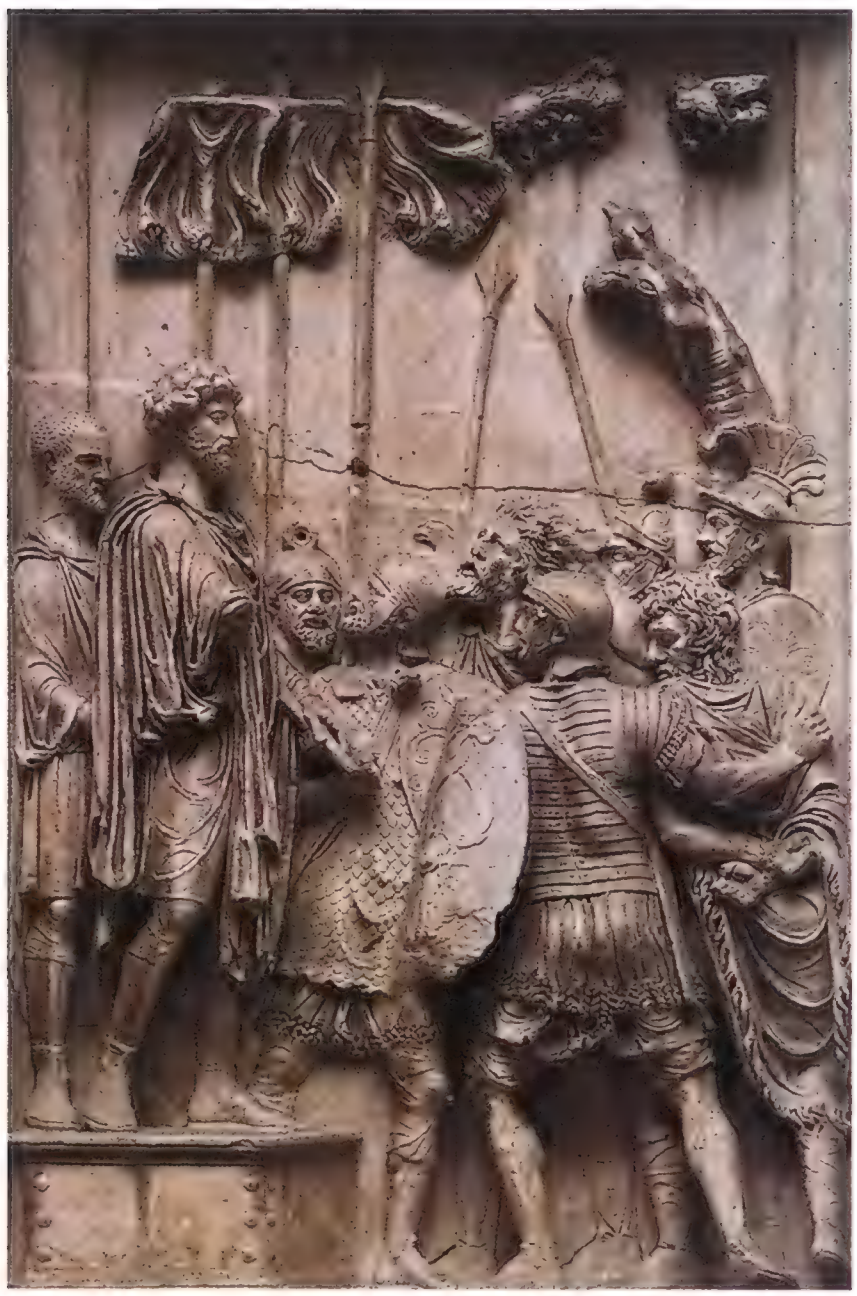

Image from 4th-century Arch of Constantine shows war prisoners brought before Emperor Marcus Aurelius; distinctive Roman flags are visible in the backdrop.

Among the earliest known flags, the finial atop the staff was more important than the fabric itself. For one thing, in battle the staff can be carried aloft, providing a rallying point all can see. "It is really a portable version of the trees under which many societies have gathered in council or in worship," says Smith. "And that staff, with its finial, expresses the aspirations of humans toward the heavens, which is probably why the eagle finial has persisted so long."

Romans deified their vexilloids. These portable gods linked soldiers in the empire's hinterlands to the divine emperor. Vexilloids, says Smith, allowed the Roman Empire to project, via symbol, a sense of its power, even in remote regions where its legions actually were thin. On the battlefield, Roman officers might order the sacred flags hurled into enemy ranks, forcing the legionnaires to charge to their rescue.

Military flags appeared early, says Smith. For one thing, until radio, generals relied on the banners soldiers raised above the dust to see how their forces were moving. Flags also signaled commands. They have determined who wins battles.

World War II's most memorable image is probably the photograph of marines raising the flag during the bloody battle on Iwo Jima. "You could make a long list of the reasons those soldiers were over there, from the Bill of Rights onward," says Smith. "But that flag going up embodied all the reasons."

At first, flags for the few

Originally, flags were rare and special. "Only kings, priests and generals used them," says Smith. Gradually, flag use spread. Medieval trade guilds, for instance, like blacksmiths or vintners, had their own banners. China perfected silk manufacture, making possible flags that were lightweight yet large. Chinese flag ideas—emphasizing the fabric over the pole, and hoisting the flag sideways, rather than hanging it from a crossbar—may have percolated to the Arabs, who associated flag colors with particular rulers and dynasties, like the Fatimids' green flags, chosen because tradition said Muhammad wore a green cloak.

Crusaders brought Arab ideas to Europe, where coats of arms also influenced flag design. Heraldry, says Smith, helped a tiny elite maintain its power and wealth by asserting a mythological superiority, originating when battlefield commanders, their heads helmeted, needed to identify themselves to their troops. In the Bayeux Tapestry depicting the Norman invasion of England, Duke William must doff his helmet in order to as-

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Brooklyn, Iowa, home to the annual Flag Festival, flies an array of banners, from the United Nations' flag to those of the 50 states and branches of the American military, in its dramatic display, initiated in 1992.

sure his soldiers that he is still fighting. After the Crusades, leaders attached "cognizances"—identifying images and colors—to their flags, and later to their shields, helmets and surcoats, and to their servants' clothes as well. These symbols grew increasingly elaborate, serving to proclaim a blue blood's ancestry. But Smith says heraldry's chief influence on flags has been the commonsense design principles evident in early coats of arms: flags work best when they are simple, have distinctive designs and colors, and remain unchanged for centuries.

It was the American and French revolutions, in the 1700s, that ushered in truly national flags. Flags now represented citizens, not just governments. During the 1991 coup, Russians rallied to Boris Yeltsin when he flew a white-blue-red tricolor from a tank. "The old hammer-and-sickle state flag meant nothing to the average Russian, but red, white and blue are the colors of liberty because they're associated with the revolutionary flags of the United States and France," says Smith. "Autocratic powers, like old Austria or czarist Russia or the German Empire, used black and imperial gold, the color of the shining sun, while fascists—including today's skinheads—use red-white-black flags."

Modern flags, such as France's tricolor, have joined the mass media. The design is the message. Each individual fabric flag is merely the medium. "What mattered was the *concept* of three vertical stripes, standing for liberty-equality-fraternity, and anybody could make one," says Smith. "You wore tricolor ribbons on your lapel, and the tricolor was made into shirts and playing cards."

He says patriotic people today sometimes confuse the fabric flag with its symbolism. "That is why I get calls all the time from people wanting to know how to properly dispose of an aging flag by burning it, when the truth is, looking down from a police helicopter, there's no way to tell which group is burning a threadbare flag to honor it, and which group is burning a flag in protest—there are no rules for burning a flag because what matters is the ideas the flag stands for, while the flag itself remains just the cloth."

Smith is probably the world's number-one answerer of such questions. But his Flag Research Center looks like any house along its suburban street. Inside, it could be the home of an eccentric professor, who has ten desks and erects leaning towers of tomes on each of them.

"When Ethiopia changed its flag in 1996, I wrote an article for the *Flag Bulletin*, which the center publishes, and I needed background," says Smith. He knew exactly where to look among the center's 12,000 books and pamphlets on flags (including 20 books written by him), and which documents to consult among the 150,000 in its files. He could visit a nearby safe-storage site to examine his collection of 10,000 flags and related artifacts. He could consult his 4,500 microfilms and videotapes on flags, his 2,000 original flag artworks, and his 1,600 prints, broadsides and posters. He even owns an Ethiopian flag carried by Emperor Haile Selassie in 1941, when the Italian fascists were expelled. And when he finished scouring these sources, Smith had the low-

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1988

Gift from girlfriend, to celebrate first job. Used to write her a Dear John letter after discovering initials belonged to another boyfriend.

1991

Gift from co-workers to celebrate leaving and starting own company. Used to sign away house, car and retirement account as collateral for bank loan.

1993

Bought to draw up first multi-million dollar deal, which put company on industry "top ten to watch" list. Also used to write check paying off bank loan.

1996

Gift from employees to celebrate early retirement after IPO raised twenty-five million dollars. Used to keep journal through Europe.

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After the British departed New York Harbor in 1783, triumphant revolutionaries jettisoned the Union Jack to hoist the standard of the 13 newly freed colonies.

down on Ethiopia's flag. "For one thing, I found that, in Ethiopia, flag desecration is punishable by life in prison with no amnesty because the Coptic Church considers desecrating an Ethiopian flag an offense against the Holy Ghost," he says. "That is because the green-yellow-red flag represents the rainbow that Genesis says God placed in the sky after Noah's Ark finally grounded on Mount Ararat."

Smith's offices are vexillology's hub. No place has more flag data. But the center's only visible flags are in the former dining room's former china closet, a repository for "flag kitsch." Here are two flag lollipops, one showing the Canadian flag, and the other, a 13-star U.S. flag. There are flag pinwheels, a flag telephone, a circa-1968 U.S.-flag-emblazoned "roach clip" for holding the stub of a marijuana cigarette, to get the last puffs, and a flag-paper cigarette. There is a Canadian-flag ashtray and another ashtray showing the Portuguese flag (a narrow green stripe, a broader red stripe and the national coat of arms where the stripes meet).

Aside from such oddities, the Flag Research Center is virtually flagless. That is because its product is information, much of which resides in Whitney Smith's cerebral cortex. He travels around the world—45 countries to date—gathering and dispensing flag data, but he also logs lots of telephone time.

"Today, for instance, a flag maker called because a customer is setting up a billiard parlor that he wants to decorate in King Arthur and Three Musketeers motif, and I have to take this seriously," Smith tells me, leaning back in his chair. "So I spent an hour this afternoon going through books looking for Arthurian-era and musketeer-era flags—who else can look at 12,000 books and find the three containing that kind of information? It's my edge!"

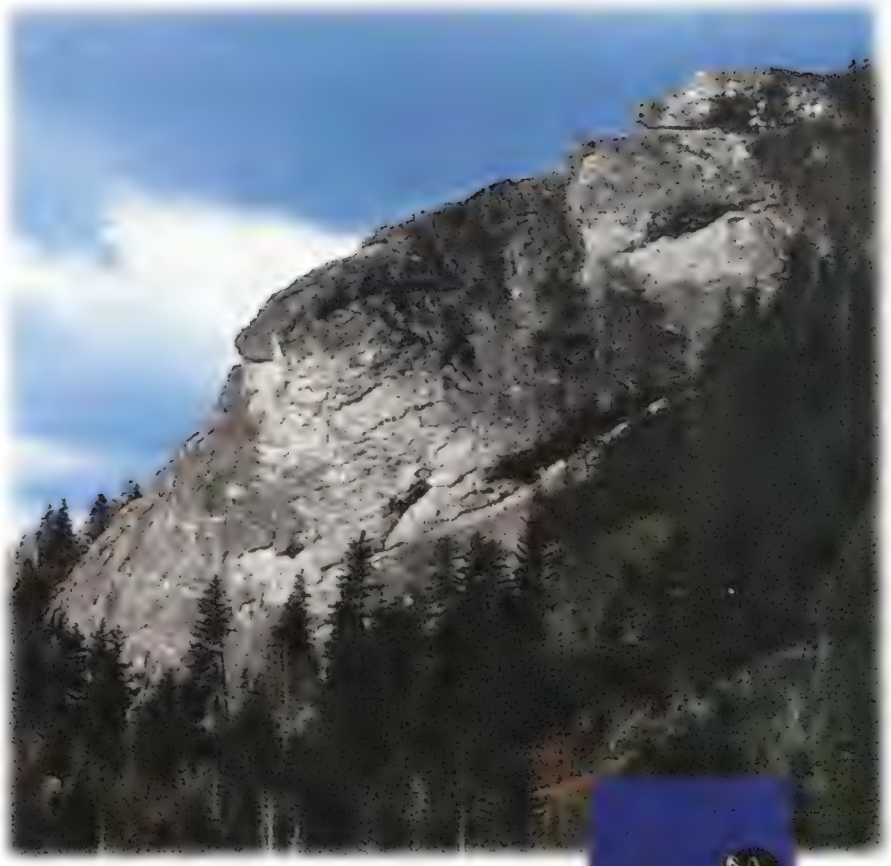
Just after Ronald Reagan was first inaugurated as President, Smith received a call from a White House official asking about protocol for displaying historical flags. Smith protested that he was a scholar, with no background in the military or government. Over the phone the voice boomed, "Well, that's what we want—somebody who knows what he's talking about!"

When the U.S. Department of Defense needs updates on foreign flag changes, Smith's phone is apt to ring. He helps France's Hydrographic Service (part of the Ministry of Defense) to maintain accuracy in a flags-of-the-world guidebook it has published since 1819 for seamen. Canada's Parliament summoned Smith to Ottawa in 1992 to testify on a pending bill outlawing desecration of the Canadian flag. He argued that respect for a flag is unauthentic if coerced. The bill was defeated. He advised the International Monetary Fund on a mural of national flags for its Manhattan boardroom. NASA was sending Apollo astronauts to the moon with small national flags, later imbedded in lucite along with moondust, to be handed out to various heads of state. "When they got some of the flags wrong, they got in touch with me," says Smith.

Among Smith's earliest assignments was a flag chart, produced in the Netherlands. It showed flags of countries, and also of independence movements, all identified in the text. But some users skipped the text. When the newly fledged Concorde supersonic aircraft flew around the world on a tour to promote the plane, one stop was Portuguese West Africa, now Angola. "They land, the pilot opens the cockpit window and puts out a flag to honor the country, but what does he raise?" says Smith. "It's the flag of the rebels! The Portuguese made the Concorde take off again, land again, and this time display the right flag!" The flag manufacturer supplying the Concorde had consulted Smith's flag chart, but ignored the text.

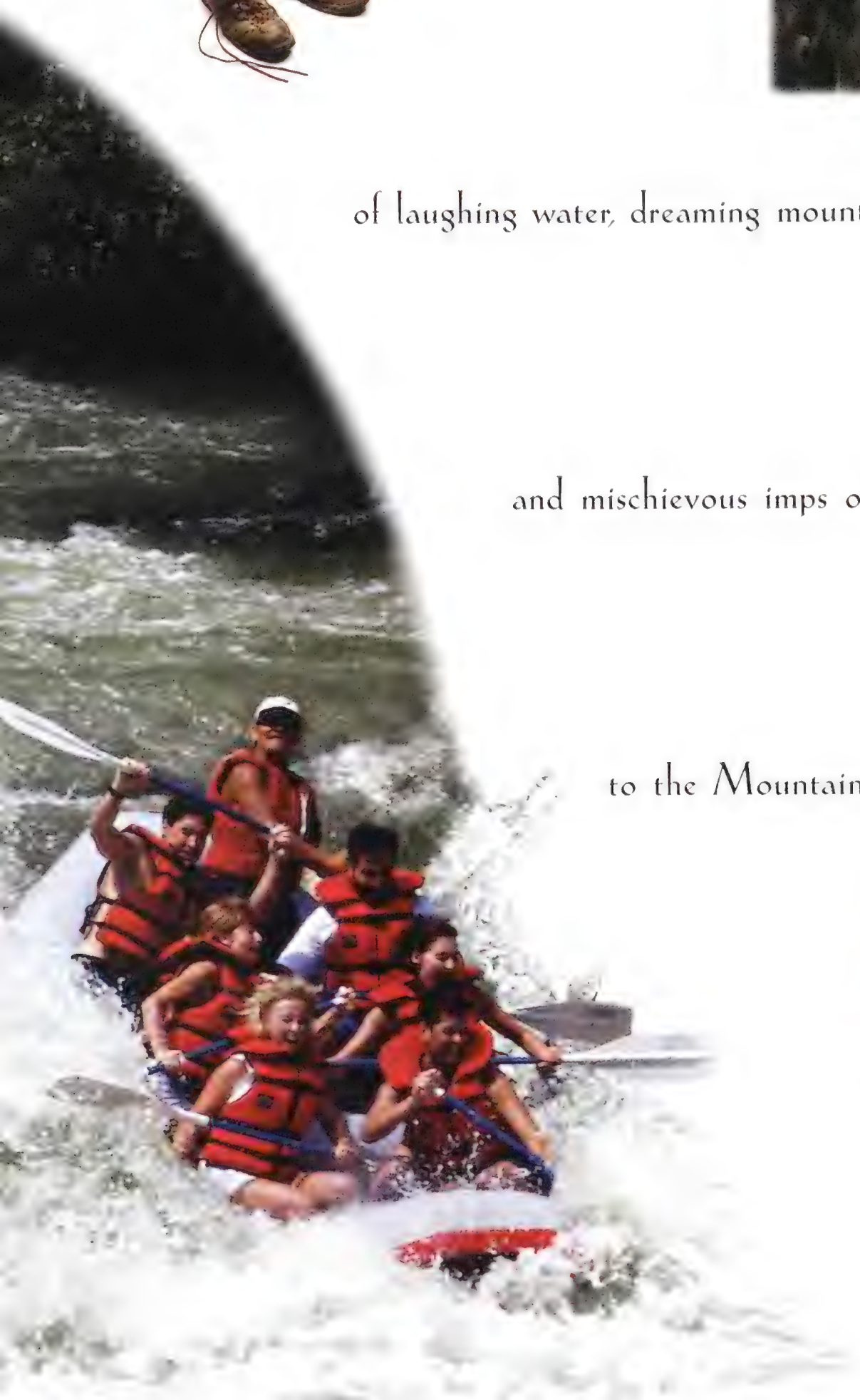
Many flag fanciers, such as collectors, can't get enough detail. Smith devoted a recent issue of the *Flag Bulletin* to some of the questions he receives:

What was the old flag of Newfoundland, the one that



I feel the pull

of laughing water, dreaming mountains



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had a moose on it? "The questioner may have in mind the 1973 proposed Newfoundland flag incorporating the head of a caribou."

What are the standard measurements for the Betsy Ross flag? "Familiar as this design [a ring of 13 white stars on a blue field, with red and white stripes] is, it is only conjecture that Betsy Ross made this pattern. In any event no specifications are known. . . ."

What is the color most commonly used on flags? "Red and white are the overwhelming favorites."

For use in a passion play, what flags would have been used in Jerusalem at the time of the Crucifixion, how, and where? "In fact cloth flags . . . were probably extremely scarce 2,000 years ago in Palestine. [And] it is difficult to imagine that Roman vexilloids would have been present at what was—from the Roman point of view—simply the execution of common criminals."

When did the first flags made of nylon appear? "After World War II a nylon-wool combination was popular . . . being replaced gradually by all-nylon flags. These have now largely been superseded by polyester flags. Traditional flag fabrics—silk, linen, wool, and cotton—have almost disappeared."

Besides answering such questions, Smith can tell you that a banderole is a streamer or ribbon, frequently emblazoned with an inscription. Or that a pennoncel is a small, triangular flag. A saltire, he can readily explain, is a diagonal cross extended to a flag's edges. And a schwenkel is a long tail extending from a flag's upper "fly" corner, which is the flappy side, as opposed to the "hoist" edge, nearest the staff.

Yet, while Smith does sometimes sport a flag necktie, he flies no flags at his own home. It is an issue, like his coinage of "vexillology," about which he is a bit defensive. "My role is to study flags and understand their nature as thoroughly as possible, so I look at flag display as something that I'm not supposed to be encouraging or promoting, but analyzing," he says.

"Also," he adds, his tone suggesting a sheepish shrug, "I've never gotten around to it."

The world was watching in the summer of 1971 as astronaut David Scott planted the Stars and Stripes on lunar soil. Perpendicular poles were required to hold the flag aloft on the moon's atmosphereless surface.

Pfizer
Perspectives

FORGET ABOUT

AN OLD AGE

SPENT SITTING ON

THE SIDELINES.

Remember when only children wore denim, middle age began at 30, 50 was "old," grandmothers wore black, and grandfathers "puttered"?

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Changes in wardrobe no longer serve as mileposts on the road from childhood to maturity. Thirty generally marks the beginning of real adulthood. Fifty is middle age. Grandmothers wear whatever they feel like—often to the office—and grandfathers run corporations and marathons.

Never before has the saying "You're only as old as you feel" rung so true. For while it may be a chronological stretch to define middle age as the 50s and 60s, it's certainly an accurate definition in terms of how people feel about themselves and their lives.

And with an aging generation of Baby Boomers bidding the 50-year mark good-bye, soon more people than ever before will be in a position to experience not just middle age, but old age. Because by the year 2050, there may be as many as 30 million Americans above the age of 84, compared to 3.3 million now.

For an aging population, medical developments that would allow people to mature with greater vitality and fewer medical costs will be more important than ever.

At Pfizer, a leading global health-care company, an important portion of the medical research under way focuses on developing drugs that would help manage conditions traditionally considered to be an inevitable part of aging. Frailty, loss of mental acuity and sexual function, and heart disease are at the top of the list.

Osteoporosis is a major area of study. Commonly misperceived as a

Never before has the saying "You're only as old as you feel" rung so true.

For an aging population, medical developments that would allow people to mature with greater vitality and fewer medical costs will be more important than ever.

Prehistory	A.D. 170	1784	1789	1893	1900	1901
Life expectancy is 18 years.	The pulse is first used as a diagnostic aid.	Benjamin Franklin invents bifocals.	Life expectancy is 35.5 years.	Open heart surgery first performed.	Life expectancy is 45 years.	First electric hearing aid invented.

problem affecting only older women, osteoporosis is actually an equal opportunity health threat. Twenty percent of the 25 million Americans who are afflicted with it are men. Currently, the disease is responsible for roughly $10 billion per year in health care and related costs. And those costs are expected to escalate to $60 billion by the year 2050.

David Thompson, Ph.D., and a group of 35 other scientists at Pfizer Central Research in Groton, Connecticut are trying to close a gap in osteoporosis therapy.

He explains: "Oral estrogen is an important treatment option for people with osteoporosis. But there is concern about potential long-term side effects."

To address this, Thompson and his group are trying to find a way to match estrogen's positive role in maintaining bone mass, while eliminating its negative effects.

Finding an improved treatment for osteoporosis is just one of Thompson's projects. His group is

1905	1928	1936	1944	1960	1965
First artificial joint used in arthritic patient's hip.	Penicillin discovered, but only available in small amounts.	First artificial heart is invented.	Pfizer is first to mass-produce penicillin; infant deaths steadily decline.	First pacemaker is invented.	First report that estrogen therapy prevents osteo-porosis in women.

Medicine can't make you younger. But it might help you feel better about growing older.

also researching medicines that could reduce body fat, restore muscle and bone mass, and improve immune function in older people.

Of course, not all of the symptoms of aging are associated with a loss of vitality. Specific diseases attack as the years advance, and

Soon more people than ever before will be in a position to experience not just middle age, but old age.

Pfizer scientists are trying to develop better treatments for a number of these illnesses.

A group of scientists headed by Dr. Ralph Stevenson at Pfizer's Central Research Facility in Groton is working to unravel the mysteries of late-onset diabetes. It's a disease that has a staggering impact on the lives of millions of people, not just in the United States, but worldwide. In Sandwich, England, Pfizer scientists are researching potential new treatments for urinary incontinence and benign prostatic hyperplasia, an enlargement of the prostate that affects the lives of thousands of older men.

Where will all of these efforts lead? It's far too early to tell whether any of Pfizer's research projects will lead to marketable medicines. No matter how promising a development or how much time or money has been invested in a research effort, there are no sure things.

All we know is this: The 50s and 60s have become the new middle age. The generation now entering this age group may be able to avoid many of the more difficult physical aspects of aging. Medicine can't make you younger. But it might help you feel better about growing older.

1980	1990s	
Life expectancy is 75 years.	Retirees outnumber teenagers for the first time in history.	Over the past 100 years, average life expectancy has doubled to 85.

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Provence Walks in the Autumn Sun *October 1-11*

Switzerland by Train *October 1-13*

Journey to Tibet and Nepal *October 12-31*

Hong Kong Interlude *October 17-26*

Copper Canyon: Mexico's Sierra Madre *October 18-26*

Folk Art and Celebrations of Mexico *October 27-November 8*

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Pacific Northwest Rail and Waterway Adventure *September 28-October 7* Aboard the *American Orient Express* and the *Yorktown Clipper*.

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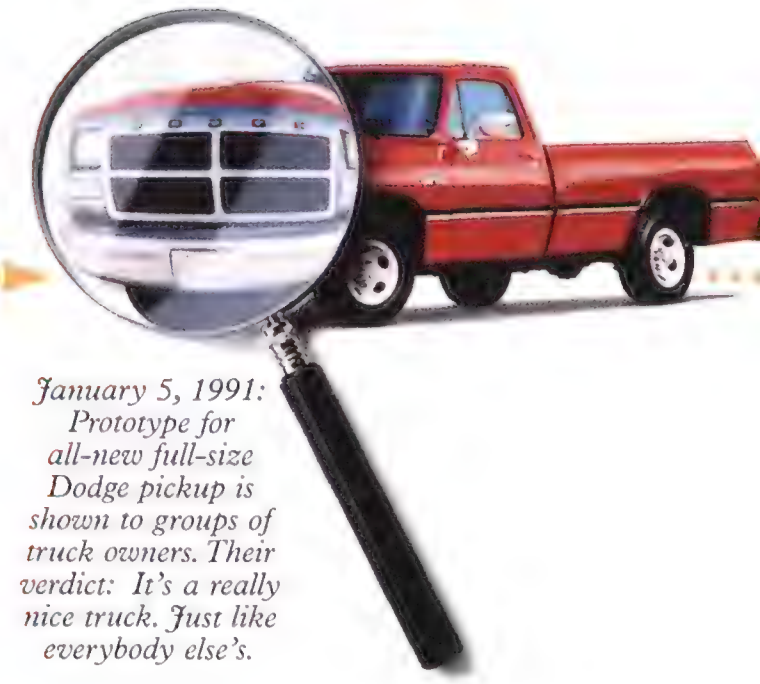

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September 1, 1993: New Dodge Ram Pickup named Motor Trend's Truck of the Year. Not to be outdone, Texas Auto Writers Association dubs Ram "Truck of Texas."

January 6, 1993: New Dodge Ram Pickup is introduced. Quote from Motor Trend: "Behind its aggressive appearance is a solid, powerful pickup that's all business where it counts ..."

Everybody in the car business talks about eliminating problems: squelching squeaks and rattles, raising the bar on reliability. At Chrysler Corporation, we've been winning major accolades for product excellence for the past several years. But to us, success is a lot more than just avoiding mistakes: It's a truck design that gets your blood pumping. The sound of a V10 engine clearing its throat. Giving people the freedom to create products that aren't for everybody.

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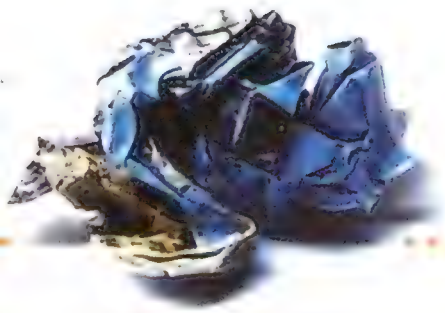
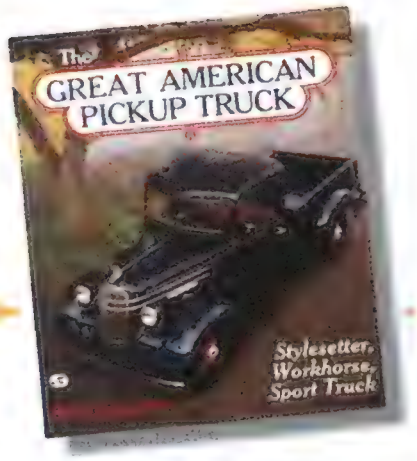


February 6, 1991:
With launch just 25 months away, design team starts over.



March 14, 1991:
Designer discovers a book on the history of American pickups. Meanwhile in the United Arab Emirates, Sheik Hamad Bin Hamdan Al-Nahyan is building a 60-foot replica of a 1942 Dodge Power Wagon.

April 20-24, 1991:
Design team visits construction site, observes how workers really use their trucks. Collision with 'dozer narrowly avoided.

June 6, 1991:
Merging onto I-75 with 20-ton semi on their bumper, designers have instincts for revised design confirmed.

November 4, 1991:
Aggressive new truck design is shown to consumers. The verdict: They either love it or hate it. (Luckily, they mostly love it.) Chrysler honchos say, "Build it."

March 12, 1992:
Interior design team dons thick work gloves to test operation of knobs and switches in the cab under real-world conditions.

April 10, 1992:
Power train team adds Magnum V10, cast-iron cousin to the 400 hp Viper V10 and the most powerful engine ever in a pickup, as power plant option.

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'94-'96 full-size models vs. MSRPs published in Jan. '95-Feb. '97 N.A.D.A. buyers of 200-plus models after the first 90 days of ownership.

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This pop-up turret looks harmless now, but when German troops (opposite, in a propaganda picture) came under fire from one, they ducked for cover.

By Rudolph Chelminski

The Maginot Line

It is known as a great military blunder, but in fact this stout network of ingenious bunkers did what it was designed to do

The Ossuary of Douaumont, situated on a wooded bluff overlooking the city of Verdun in northeastern France, is a huge, cruciform vault: 150 yards of white limestone surmounted by a 150-foot tower resembling an artillery shell. The monument honors the 700,000 French and German soldiers who were killed in the scarcely believable carnage of the 1916 Battle of Verdun, the pivotal engagement of World War I. The interior is an echoing, cave-like cloister punctuated by 18 alcoves standing over as many burial chambers. It is only when the visitor quits the oppressive cavern and emerges into daylight that he notices the little windows running along the outside walls. Something grayish-white catches the eye, and it requires a few seconds to realize that it is human bones: endless stacks of anonymous human bones, 500 cubic feet of them under each alcove, the remains of 130,000 unidentified men collected after the 1918 armistice. More eloquently than any speech, position paper or strategic concept, the Douaumont Ossuary explains why the French built the Maginot Line.

A network of fortifications conceived as an obstacle to any future German invasion, the Maginot Line is notorious as a universal metaphor for bungling. But in fact it was not quite the abject blunder it has been made out to be. In many ways, it was a model of ingenious engineering and technological accomplishment. It was designed to do certain things and in those succeeded admirably. Its shortcomings derived not from failures of execution but from the inability of its proponents to anticipate how much warfare would change in a mere two decades.

Certainly no one could blame the French for trying. *La Der' des Der'* (The Last of the Last) they called World War I, when the nightmare finally ended. France was bled white, its finances a shambles, its northern provinces devastated. From the president of the republic to the lowliest peasant, the same appalled determination

gripped the French as the nation headed into the 1920s: *plus jamais ça.* Never again. Less than two years after the armistice, a Superior Council of War directed by French president Alexander Millerand was already considering the best design for a fortified wall. Germany had invaded twice in the previous 50 years. Now, Millerand and his experts saw it coming again.

They were right, but there was something of the self-fulfilling prophecy in their mind-set. French foreign policy and the draconian strictures of the Treaty of Versailles, which Germany was obliged to sign, must share some of the blame for the rise to power of a revanchist firebrand named Adolf Hitler. It is an indication of the state of European relations in those pre-Common Market days that France's Teutonic neighbor was known as the "beast that sleeps on the other side of the Rhine."

It was not until January 1930 that appropriations for the anti-German frontier fortress came to a vote in the Chamber of Deputies. The minister of war, a veteran who had been seriously wounded in 1914, was the session's main speaker. His name was André Maginot. "Whatever form a new war may take," he warned, "whatever part is taken in it by aviation, by gas, by the different destructive processes of modern warfare, there is one imperious necessity, and that is to prevent the violation of our territory by enemy armies. We all know the cost of invasion, with its sad procession of material ruin and moral desolation."

It was settled then: France would protect future generations behind a wall of high technology. The deputies gave Maginot a huge budget for a five-year building program. Inevitably, there were cost overruns and revisions, and it was necessary to extend the ambitious project year by year. Final touches on the Maginot Line, the so-called Great Wall of France, were still being completed in 1939 when war was declared.

Predictably, the Line turned out to be a bigger bite to chew than most of the enthusiastic legislators had anticipated. There were 471 miles to cover opposite Germany, Luxembourg and Belgium to the North Sea—not even counting the border with Switzerland or, worse, Italy, where Benito Mussolini was making bellicose noises. Army engineers faced a daunting challenge.

The plan was to defend five great swaths of territory: the Italian frontier, from the Mediterranean to Switzerland; the border along Switzerland itself; the Franco-German separation along the Rhine, from Basel to Wissembourg, a small city at France's northeastern point north of Strasbourg; from there westward to the Ardennes Forest; and thence along Belgium's southern frontier westward to the English Channel.

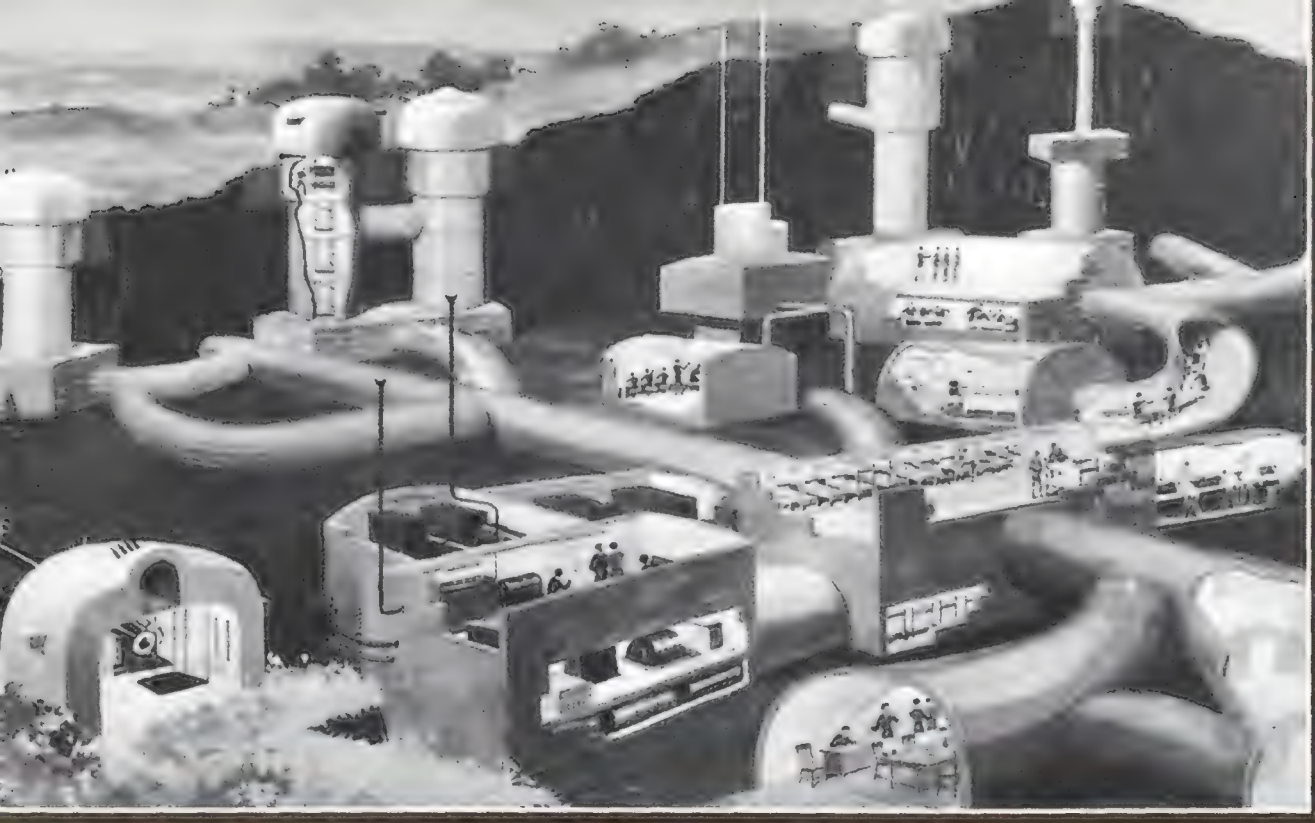
Rudolph Chelminski has been living and working in France for more than 30 years. He has written most recently for SMITHSONIAN *about fine French cheeses.*

Arrows show how the Germans went around the Maginot Line, through the Ardennes Forest and across the Rhine. The Line itself stood firm.

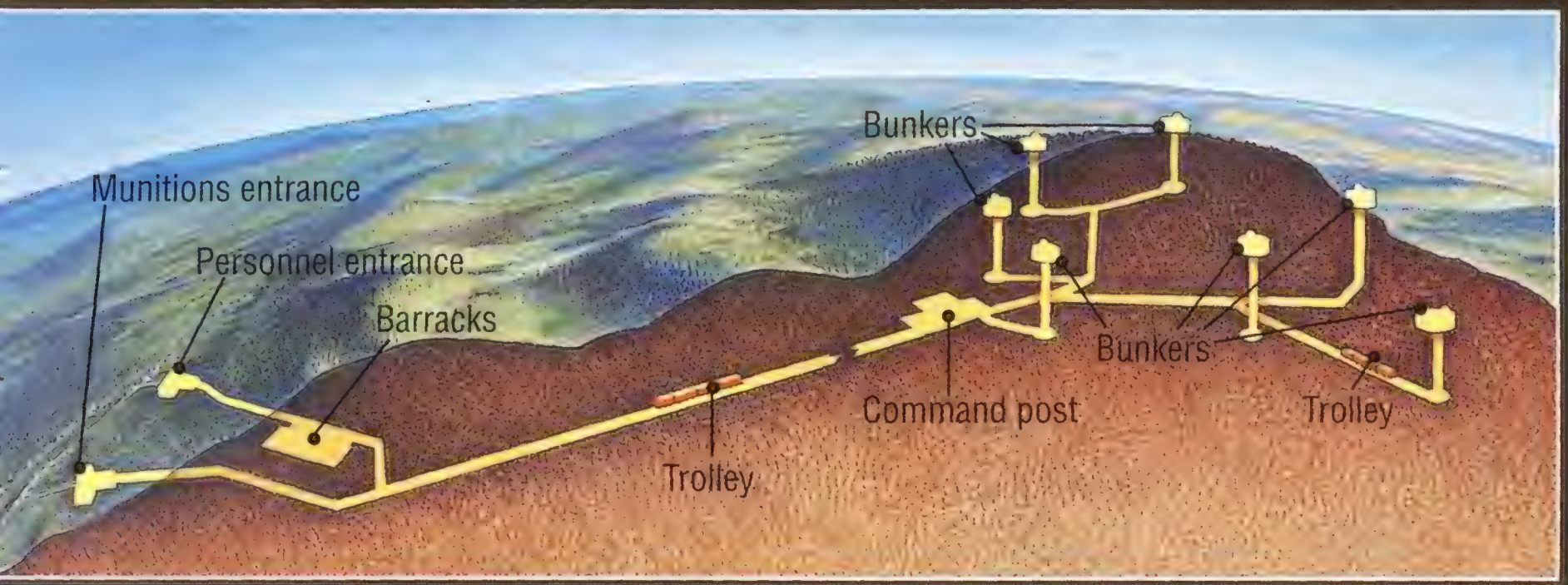
Some sections were relatively simple. The border with Italy, already fortified in the 19th century, was extremely mountainous. The old forts would be updated, and modern, reinforced-concrete ones would be added. The border with Switzerland was considered safe, the country being a little porcupine of a fortress all by itself.

The long section along the Rhine looked secure to the Maginot planners because the river itself was a wonderful barrier, needing only to be reinforced with mines, barbed wire, riverbank machine-gun bunkers, infantry and, a few kilometers back, a series of small, cheap "generic" forts and bunkers, each manned by no more than 20 or 30 soldiers. French military experts calculated that their steel-domed, concrete machine-gun bunkers would withstand any light weapons, while cannon heavy enough to subdue them would breach dikes in the area and create a flood that would only make matters even tougher for the invader.

Above and west of the Rhine, two crucial areas where French soil met German soil received the most exquisite



Before World War II, the layouts of the Line's *ouvrages*, or large underground fortifications, were a military secret. Illustrators surmised that they were compact, like battleships (left), when in fact they were elongated and spread out (below). Barracks complete with a wine cellar, a chapel, a dentist's chair and a morgue could house a thousand men. Trolleys carried troops, arms and munitions to combat bunkers through tunnels often more than five miles long.



attention and the lion's share of funds: the Lauter River valley near Wissembourg and the region around the industrial city of Metz. This, in other words, was Alsace and Lorraine, that ancient Franco-German bone of contention. In these two *régions fortifiées*, French engineers poured a debauch of energy and inventiveness into some 50 *ouvrages*, or large fortifications. In the gaps between they strewed a seemingly impenetrable swarm of smaller blockhouses.

Each ouvrage lay within cannon reach of another one, allowing commanders to call on a neighbor to lay a barrage of antipersonnel fire directly on top of their fortifications if enemy troops appeared, an operation known as "delousing." The same cannon could, of course, free the smaller blockhouses of their "lice" with friendly fire. Every eventuality seemed to be covered.

The ouvrages were of an entirely new type, as revolutionary, and as hyped in the press, as such later French technical innovations as the air-suspended Citroën automobile and the Concorde supersonic plane. Buried 100 feet and more under hills and ridges, they all followed a similar design based around a long central tunnel of stone and reinforced concrete with a "life zone" at one end and a fighting zone at the other, reached by secondary tunnels, stairways and elevators. The largest of the ouvrages, manned by 1,000 or more soldiers, had five miles or so of tunnels through which men, equipment and munitions were transported by trolley—dubbed the *métro*—a photogenic novelty that repeatedly adorned the front pages of prewar newspapers.

Powered entirely by electricity and equipped with everything from wine-storage areas by the kitchen to a dentist's chair, jail cell and morgue, each ouvrage was a self-sufficient unit, a little underground city with its own wells, food supply and power generator, capable of up to three months of total autonomy, like a submarine underwater. The World War I obsession with gas attacks was parried by a ventilation-filtration system that created a slight overpressure within the fortifications, and as in naval warfare, the cannon crews fired blind, guided

by ground-level observers telephoning to subterranean fire-control command posts.

The typical ouvrage took the shape of a gigantic tree sprawling underground. The command and living areas were the roots, from which a long trunk tunnel led to branch tunnels, which led to individual bunkers armed with cannon, mortar and machine guns—up to 17 of them in the biggest fortifications. The cannon (mostly paired sets of the venerable, but still deadly accurate, French 75s) were housed in steel "pop-up turrets" set inside circular shafts of reinforced concrete. With nothing but the easy arc of a rounded steel dome protruding aboveground, the weapon was practically invulnerable when retracted. When the orders to fire were given, the dome rose about two feet to expose the twin barrels within the rotating shaft.

Inside each cannon turret, a diorama of the surrounding countryside was drawn (and often prettified and colored by bored gunners) along the circular wall, allowing artillery crews to visualize the targets corresponding to the numbered coordinates sent up to them by fire control. And naturally, the French—being a mathematically inclined people—had previously calculated every square yard within each cannon's range and assigned its coordinate.

The ouvrage of Simserhof at Bitche, a pretty little city near the western edge of the Lauter fortified region, is nicely representative of the clever defensive ideas poured with such prodigality into the Line. One of the half-dozen Maginot ouvrages that have been tidied up and opened to the public, Simserhof's gloomy netherworld is so replete with tricks that visitors are tempted to conclude that French military engineers must have actually had fun imagining the perfect modern fortress: take that—and that!

The main entrance is reached via a retractable steel drawbridge over an antitank ditch, after which a seven-ton steel door set into the hillside gives onto nearly three miles of concrete passageways, lying at an average depth of 118 feet under Alsatian sandstone. During combat, 812 men worked three eight-hour shifts, "hot-bedding" it like submarine crews. The main entrance, a theoretical weak point despite the tank ditch and the seven-ton door, was protected by a 47-millimeter antitank gun, but in case the defenders preferred shooting men rather than panzers, they could retract the 47 by means of an overhead rail and, presto! slot a heavy machine gun into its place. Many of the Line's machine guns were mounted on cams that raised or lowered the barrels as the guns swept the terrain around them, maintaining their hail of bullets at about a foot above the ground.

Might some of the Germans infiltrate through the machine-gun fire and approach the outside walls, crawling where no one could see them? No problem: a little hand-operated launcher rather like a mail chute would deliver grenades out to the other side, *ploop-bang.*

Might the enemy somehow get past the door into the passageway? Then they would be mowed down by ma-

French soldiers assigned to the Maginot Line passed the time while confined to their underground barracks by playing cards, hanging out in their bunks and soaking up ultraviolet rays, which were found to be a poor substitute for natural sunlight.

chine guns in a bunker—a bunker within a fortress!—set into the wall a few meters farther back.

Might they pass the bunker? If worst came to worst, the passageway was mined so the push of a button could collapse the tunnel with a single explosion.

Might they still come on, in spite of it all? Well, the men could evacuate through the secret emergency exit, a special little tunnel leading to a vertical escape shaft.

It is a jewel of ingenuity, this emergency exit, the perfect symbol for the cunning attention to detail that went into the conception of the Maginot Line. Every ouvrage had such an exit, as much as 130 feet of ladder straight up through the protective earth, ending in a well-disguised manhole at ground level. But what if the Germans discovered the manhole early on? They could attack down through it, couldn't they? The planners had taken that into account: if attackers lifted the cover, they would find nothing but gravel.

The trick was simple. The evacuation shaft was twice as deep as necessary, with the top half being entirely filled with gravel stoppered by a steel gate. The little exit tunnel from the ouvrage debouched at exactly that midpoint. The officer in charge activated a lever, the steel gate opened, the gravel clattered down into the bottom half of the shaft, and the men climbed out.

Two thousand laborers worked around the clock from 1929 to 1933 just to dig Simserhof. After that, endless brigades of specialists moved in to equip it.

The problem was that neither time nor budget permitted the French to protect their entire frontier with such formidable defenses. There were gaps, big ones, and the Germans knew it. For all intents and purposes, the Maginot Line ended just east of the city of Sedan, directly under the great forest of the Belgian Ardennes, a natural barrier that the French general staff calmly asserted to be as secure as the Rhine. "With special modifications, the Ardennes Forest is impenetrable," said Marshal Pétain in 1934 as he and other top French brass were overseeing the Line's construction. "Therefore, this sector is not dangerous."

Beyond the Ardennes and along the Belgian border to the English Channel, there was no serious effort at fortification. After all, the French reasoned, their ally Belgium was itself a fine barrier to the Germans, a buffer state whose resistance would offer the French an eight-day delay for organizing their defenses. That reasoning was calculated on the walking speed of foot soldiers. But by then the Germans were motorized and mechanized.

As the crises that led up to the outbreak of war followed one upon another—Germany's reoccupation of the Rhineland and annexation of Austria (the *Anschluss*), the surrendering of the Sudetenland to Hitler under the Munich Pact appeasement policy, Germany's subsequent invasion of Poland—local infantry division commanders in the exposed border regions were allowed to fortify ad hoc, more or less as they pleased, where they pleased. This long stretch soon became decorated with thousands of mismatched little artisanal pill-

boxes. "*Une misère,*" wrote one commentator, "*une illusion.*"

Pétain's glib assurances about the Ardennes returned to haunt him in May 1940 when the tanks of Gen. Heinz Guderian, the architect of the German Army's revolutionary *Blitzkrieg* (lightning war) tactics, punched an enormous hole in Belgian and French defenses and flooded down through the Ardennes to encircle the home armies and isolate the Maginot Line. Close behind Guderian's tanks, the Germans struck through the Ardennes with 44 divisions. They simply followed the normal civilian roads down through the forest. The Belgians had never carried out the program of modifications—barriers, traps, road destruction—that Pétain had so confidently anticipated. Facing the swift-moving invaders, some 40 French divisions were immobilized within the Maginot Line or as "interval" troops protecting it from without, while another 30 or so divisions were stretched out along the border from Montmédy, where the Line ended, to the Channel.

The Germans came with modern tanks, fighters, Stuka dive-bombers and fast-firing cannon, especially the dreaded high-velocity 88s, among the most devilishly effective weapons of World War II. The French had few antiaircraft guns, a scarcity of planes to protect their heads and only outdated tanks on the ground. Out in the open where armies clashed, it was a wipeout. Outmaneuvered, outgunned and outflanked, French field forces suffered a humiliating rout.

The myth of the natural barrier of the Rhine fell quickly. French planners, reasoning that their riverside pillboxes would be immune to attack because heavy artillery would breach dikes in the area, had failed to take into account the flat-trajectory 88s. Small enough to pose no danger to the dikes, their shells nonetheless blasted bunkers to smithereens. The combination of the terrible 88s, Stuka dive-bombers and troops with hand-carried charges then subdued the small forts behind the river, sometimes within minutes.

German gunners developed a simple but deadly tactic for dealing with the exposed machine-gun and observation turrets of smaller fortifications. Repeatedly firing shells from their 88s at exactly the same spot, they burrowed holes, jackhammer-like, through the turrets' 12 full inches of solid steel. Eight shots were generally enough to do the trick, each hit showing in a spectacular spray of sparks and "ringing the bell" by sending massive, head-splitting reverberations through the turrets.

The invaders had enjoyed an earlier measure of success by overpowering the small ouvrage of La Ferté, the Maginot Line's westernmost fortification, located just a few kilometers from Sedan. One lucky shot scored a direct hit into the observation slit of a turret, killing the three men inside. Under cover of an artillery barrage and smoke screen, infantrymen then shoved grenades, smoke bombs and explosive charges into the opening. Over the next 24 hours, those among La Ferté's 106-man crew who survived the initial assault asphyxiated in their spent gas masks. Smoke and toxic fumes from the explosions above had filled the tunnels, but the men would not leave. The commander of the ouvrage had

Tunnel at Simserhof ouvrage today (above) differs little from that shown in staged prewar picture (right).

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IS NOT SO MUCH WHERE WE STAND, AS IN WHAT DIRECTION WE ARE MOVING. -Oliver Wendell Holmes, Jr.

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Troops from an American cavalry unit used a badly scarred Maginot fortification as a shield. Americans fired on such bunkers to see how they would hold up under heavy punishment. They were very impressed.

written earlier to his wife: "We know that our mission requires us to die on the spot."

The Germans made heavy propaganda from that victory, but La Ferté was not a true "battleship" of the Line. Built late, when time and funds were running out, it was only a glorified blockhouse, bereft of artillery. Indeed, during the early stages of the invasion, the Germans dealt with the Maginot Line mainly by avoiding it. Then, in mid-June, on the same day Wehrmacht troops entered Paris, they launched Operation Tiger, a direct offensive on the Line ordered by Hitler himself. They attacked in the area of the Sarre River, east of Metz, bringing to bear an incredible variety of weapons that included everything from 88s to an array of cannon that fired comfortably from beyond the range of the Line's short-barreled 75s. As Stukas swarmed unopposed overhead to add their 250-kilo bombs to the concert, the ouvrages underwent a hellish deluge of fire that impressively plowed the surrounding landscape and occasionally killed lookouts when shells scored direct hits on observation turrets. But deep within their concrete carapaces, the crews went about their business as safely as the Line's early visionaries had predicted.

In other respects, too, the Maginot Line proved to be every bit as formidable as its builders had hoped. It has often been said that the Germans had an easy time taking the Line from behind because its cannon were "pointing the other way." In fact, the big guns in turrets were able to rotate 360 degrees, blasting away in every direction. "German officers told me they felt like rabbits trying to run from shotguns," said Roger Bruge, the author of several books on the Line and France's leading authority on the subject. Those 75s followed them from step to step, and if ever any vehicle was unlucky enough to get within range, it just got blasted.

It is an incontrovertible fact that the Maginot Line failed to foil a German invasion. Within the space of six weeks, France's military collapse was total. The most galling irony of all for Frenchmen, though, was that the Maginot Line itself never was taken. The fierce German attacks against it failed. The ouvrages held out: not a single artillery piece was neutralized. When the Line was handed over to the enemy, it was still intact.

With the signing of an armistice in June, the fighting was suspended (except for the subsequent resistance of the French underground) until the Allied invasion of Normandy four years later. Unwilling to believe it, still aching for a fight and still operational, the large ouvrages held out until July 1 when, on direct orders from the French commander in chief, the Maginot Line's forces marched out to be taken prisoner. Resisting further would have been useless vainglory. Now, goggle-eyed like rustics at a county fair, German troops could enter the legendary fortresses and wonder at all the tricks their clever enemy had prepared for them.

During the rest of the war, the Germans made occasional use of the Line for storage, training and field hospitals, and, briefly, against the Americans during the Ardennes offensives. The French Army repossessed it after the war, but modern warfare had rendered it useless. The soldiers padlocked the big steel doors and walked away with a moue of disgust.

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A curious mixture of pride and embarrassment still pervades talk of the Maginot Line today in French military and government circles. No one quite knows what to do with it. It won't go away, and it is far too big and ponderously ubiquitous to get rid of. Then, too, there is an abiding fascination with it throughout the world. Today the Maginot Line is associated with France scarcely less indelibly than the Eiffel Tower.

An obvious thought springs to mind: Why not exploit that recognition for tourism? In the Alsatian city of Haguenau, 7½ miles from the German border, Claude Damm struggled with the government for years to get access to the dilapidated and unused ouvrage of Schoenenbourg, near the picture-postcard village of Hunspach. Damm is the president of the Association of Friends of the Maginot Line in Alsace. "So you want to play soldier," grumbled the colonel in charge in Strasbourg, impervious to Damm's argument that, like it or not, the Line had become an important part of France's national heritage and as such ought to be opened to the public. In 1982 Damm finally wrested a key from the Ministry of Defense—there was something comical about undoing a padlock to enter the Maginot Line—and he and his friends and volunteers have been at work ever since, fixing elevators, replacing lights and generally making the ouvrage ready for tourists. Damm's association bred cousin groupings in several different localities throughout Alsace and Lorraine, and today at least six fortifications—Schoenenbourg, Simserhof, Four à Chaux, Hackenberg, Fermont, Marckolsheim—are open for visits under the authority of local townships, and staffed by volunteers.

The military establishment still largely acts as if the Line does not exist, and over the years the government has sold off many of the smaller forts and blockhouses or simply ceded bunkers to farmers whose fields were encumbered with cold concrete. The largest ouvrages are far too vast for civilian use, and although there have been desultory attempts at commercialization—a disco here, a mushroom farm there—such enterprises have usually lasted no more than a few months, as the inherent inadaptability of the military-specific design became apparent. There are said to be a few private houses built atop some of the 30-man blockhouses, which, if nothing else, assures the lords of these curious manors some of the best and most burglar-proof wine cellars anywhere in creation. And, yes, a number of today's happy owners of André Maginot's fortifications are German.

Old Maginot ouvrages have been turned into wine cellars, a mushroom farm, even a disco. Some are open to the public as museums. They are often visited by school groups, as here at Hackenberg, near Metz.

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By Bennett Schiff

Aristide Maillol: the sculptor, the man and his muse

The eminent artist's last model, Dina Vierny, has dedicated herself to preserving and perpetuating the legacy of his life's work

Maillol and Dina Vierny, here in 1944, knew each other for ten years. His model and muse, she posed for such works as the bronze 1941 study for *Harmony*, opposite.

"You'll see," Dina Vierny had said in Paris in the Maillol Museum, which she had established with such perseverance and stocked with examples of a lifetime's range of the famed sculptor's work. "He's alive. He will be with us in Banyuls."

Aristide Maillol died in 1944. It had taken Vierny, Maillol's last model, some 30 years, from when she first had the idea of the museum, to finally open its doors to the public in 1995.

We were to fly down to Banyuls-sur-Mer in southern France, where Maillol was born and where he died. Banyuls, south of Perpignan, is only about nine miles—by the precipitous hairpin road that skirts the Mediterranean—from the Spanish border. The Albères Mountains squeeze down toward the sea; just beyond them rises the massive Pyrenees range and wilderness.

It is a land once colonized by Greeks, Romans, Phoenicians. The native language is Catalan. Just across the border, Catalonia has become an autonomous region of Spain, famous for breeding poets, painters and sculptors.

When Aristide Bonaventure Jean Maillol, a Catalan peasant, was born there in 1861, Banyuls was a fishing village with some small holdings of grapes and olives and a steady trade in smuggling across the border.

After you have been in the rooms of the house in which Maillol worked and died; have been in his garden, now restored as he planted it; have walked into the hills where he built a large studio, which Vierny has converted into another Maillol museum—you know what she meant. He had once told a friend: "My village, which I love more than anything I have ever seen, has every resource to offer a painter—it's as if a golden dust had been scattered over the entire area."

Maillol's spirit is very much there, in Banyuls. He might leave it for Paris for six months of the year, but the other half, until the day he died, he lived in Banyuls.

In 1934 Dina Vierny, then 15, received a letter from out of the blue. It came from Aristide Maillol, the renowned sculptor, and it was to change both of their lives. Maillol, then 73, had written at the suggestion of the architect J. C. Dondelle, who was a friend of Dina's father, a pianist.

"Mademoiselle, I am told that you resemble a Maillol or a Renoir," he wrote. "I will be happy if it's a Renoir," he added modestly. Maillol presided over Sunday gatherings at his home and studio in Marly-le-Roi, just outside Paris. He went on to invite the young student to come see him there.

She wandered in, not knowing what to expect; she was

Photographs by Robert Leslie

hardly aware of who he was. There, among artists, writers and composers of near or equal stature, were André Gide, novelist and memoirist; and the poets Paul Valéry and Paul Claudel. "You go there," Vierny recalls, "you look around, see the long beard. 'I'm the girl who has come to see you.'" It was the wrong beard, an easy mistake in that company, in that time. Finally, she met Maillol.

"I was 15. His wife didn't like all the models around. But she was very nice to me. She agreed that I looked like the work he was doing. Nothing astonishes you when you are young. Now I would be terrified."

This is somewhat hard to believe. After spending several days with Vierny in Paris and Banyuls, it is clear that she is, at 77 now—older than Maillol when she first met him—a major force in her own right. The lineaments that Maillol saw are blurred by time, but the intensity and vivacity, the sheer forcefulness of her personality, are compelling, at times overwhelming.

Vierny wears the ribbon of a commander of the French Legion of Honor for services rendered to the culture of France. Not the least of these, in addition to the two museums, was the gift of 18 major Maillol sculptures to the nation, a grand exercise she executed with André Malraux, Charles de Gaulle's Minister of Culture, in 1964. Later, she added two more, for a total of 20. Today, these inhabit the Carrousel Garden of the Tuileries facing the Cour Napoléon of the Louvre, which is glimpsed through the marble-columned triumphal arch of the Carrousel.

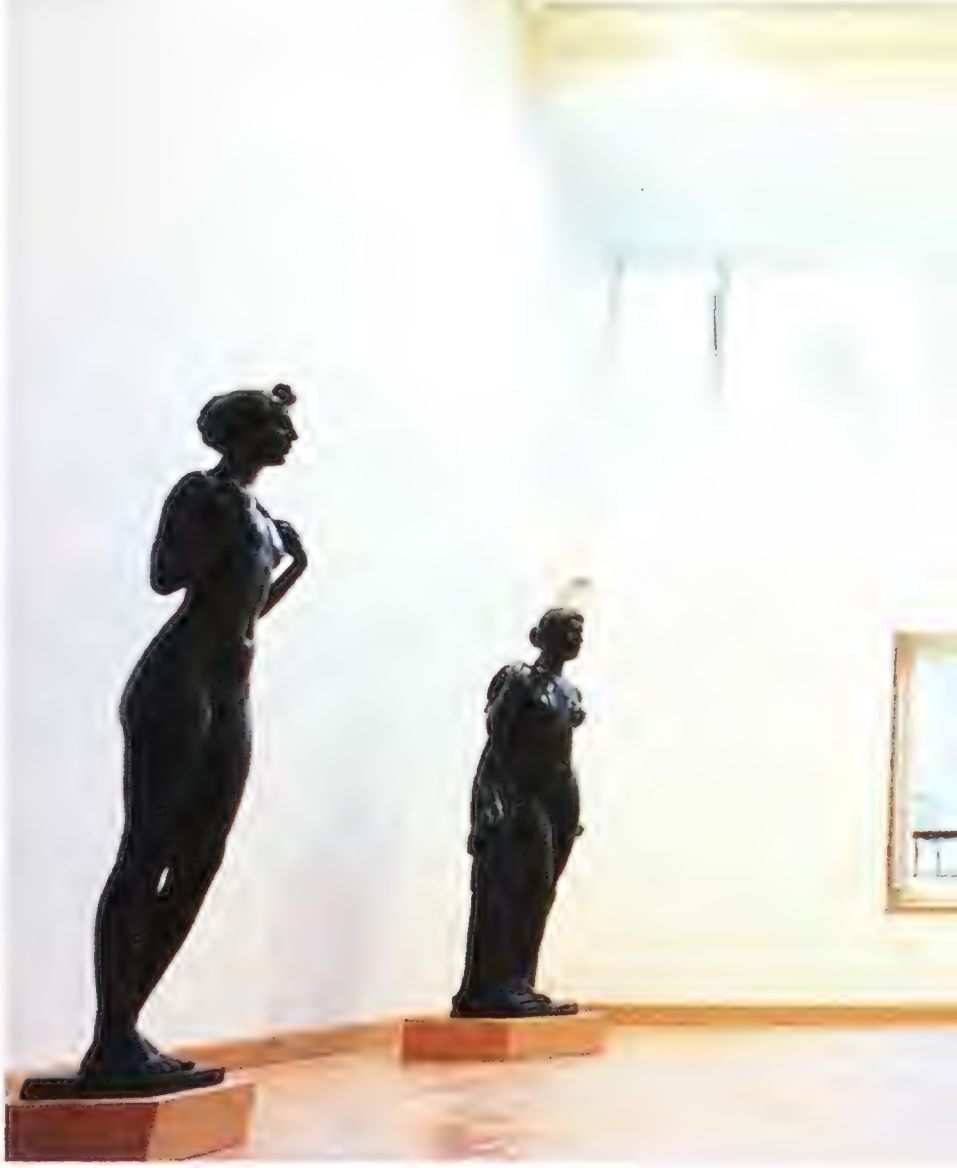
Maillol had once written to the influential writer and critic Octave Mirbeau, an early admirer and supporter of his, "What I want is a garden, a huge garden; and I shall immediately people it with statues which will proclaim the glories of Zola's life and work for ever, among the flowers. . . . for I am a gardener too, you know." Mirbeau had been suggesting him for a commission to memorialize Emile Zola. He didn't get the commission, but there is a garden now, peopled with his statues.

Like almost all of Maillol's sculptural work, they are female nudes, none of which would make it in *Vogue*, although they are quite at home in the galleries of the world's major museums. There are people enough, critics and other authorities, who now and then have criticized Maillol for continuing to explore the possibilities of one subject, the feminine form. That's like saying an apple by Cézanne is just another piece of fruit.

Maillol's search was for the common thread that so subtly stitches together three-dimensional shapes in space. If you look long enough at a Maillol sculpture you will forget that it is of a nude woman and fall under the spell cast by the forms. His memorials to the war

Contributing editor Bennett Schiff has written most recently for these pages on the art treasures from Taipei's National Palace Museum, in March 1996.

Edme Bouchardon's monumental Fountain of the Four Seasons greets visitors outside Paris' Maillol Museum.



Maillol sculptures, including *Pomona* (1910), right, enliven intimate gallery space inside the museum.

Pierre Perrin

dead, for example, are not of guns and cannon, or men on horses. They are of bereavement, of loss enveloped within the universal form of a single woman, a mother, a feminine ideal.

The monument to the war dead in the mountain village of Céret, about 30 or so miles from Banyuls, says, simply: "*A ses enfants/Mort pour la France*" (To her children/Dead for France). It is of a seated woman, her head bowed. "One can express grief with motionless features," Maillol once said, "but not with a twisted expression and wide-open mouth."

Fishing boats painted on a tablecloth scrap

Maillol had not intended to be a sculptor. He began by drawing. His great-grandnephew Yvon Berta-Maillol, who today makes fine wine on Maillol land outside of Banyuls, recalled family tales. "There were no shops in those days for artist's materials in Banyuls," he said. "Maillol took the scissors from his mother's sewing basket, cut out the center piece of the tablecloth and painted his first work on the back. It was of fishing boats. He was 13." There was, added Berta-Maillol, quite a scene when it came time to set the table.

When he was 20, Maillol took drawing lessons in Perpignan, about 22 miles from Banyuls. From there, after he felt he had absorbed all he could, he went on to Paris. He had very little money, an allowance of 20 francs a month, from his devoted aunt Lucie in Banyuls. His life in Paris was hard; he had no friends, and each time he tried to pass the rigorous examination of the Ecole des Beaux-Arts, he failed. But he persisted, auditing drawing courses at the Beaux-Arts given by leading academician Jean Léon Gérôme, which could be done without being an enrolled student. When Maillol showed his work to Gérôme, the teacher glanced at it and said, "You know nothing! Go to the Ecole des Arts Décoratifs and work on noses and ears."

A year later, at age 21, Maillol did go to the Ecole des Arts Décoratifs, where he worked very hard. Still virtually penniless, he was undernourished and suffered from rheumatism. Although hospitalized several times, he continued to work at his art. Finally, in 1885, he passed the exam at the Beaux-Arts.

For five years Maillol studied at the school and visited the great museums of Paris, where he copied works by Chardin, Fragonard and Rembrandt. He was a slow but methodical worker. Unable to buy canvas, he painted on jute sacks mounted on stretchers. It was, in its difficult way, typical of the life of young and not-so-young artists in Paris, where the bohemian life was not exactly the romantic existence it seems when viewed from a distance.

Eventually, Maillol made friends and—excited by the new art then appearing—drew away from the conventionalism of the Beaux-Arts (but never away from the so-

Medley of Maillol sculptures (from top): harmonious bronze *Venus* (1918-28) graces square in Perpignan; carved in stone, *Grief* (1921-23) honors war dead of Céret. *The River* (1938-43) seeks repose in the Tuileries.

lidity of its training). In particular he was excited by the flat, pure colors and forms of Gauguin. "Gauguin's painting was a revelation to me," he said. "Right then I told myself that what I did would be good when it had Gauguin's approval."

At about that time, inspired by the medieval tapestries in Paris' Cluny Museum, Maillol became interested in tapestry making. In 1893, he set up a petit-point tapestry workshop in Banyuls where he employed Angélique and Clotilde Narcisse, who were sisters, to work for him. For pigments, he ground local plants he himself had gathered in the hills. A year later, Maillol returned to Paris. Clotilde soon followed. They set up house together, and later married and had a son, Lucien.

One of Maillol's tapestries, on exhibit in Brussels, caught Gauguin's eye—a dream come true. "Maillol is showing a tapestry which cannot be praised too highly," Gauguin wrote in an art journal. But Maillol worked so intensely on his tapestries, which required hours of meticulous labor in artificial light, that he seriously strained his eyes. He actually lost his sight for a time, and afraid he might lose it permanently, he gave up tapestry making. And so, at the age of nearly 40, he finally came to sculpture. It was a late but momentous arrival.

By this time, Maillol had met a number of young and active artists, writers and poets in Paris, especially the group known as the Nabis, which included painters Maurice Denis, Pierre Bonnard and Edouard Vuillard. Returning from a visit to Banyuls, he showed these artists some of the small terra-cotta figures he had recently made there. Vuillard, impressed, introduced him to Parisian art dealer Ambroise Vollard, who bought several of his sculptures and had them cast in bronze. Encouraged, Maillol began to work intensely with clay and bronze, creating some 30 statuettes in one year.

In 1902, Vollard gave Maillol his first one-man show. One of the sculptor's entrancing little figures, *Leda*, caught the eye of Octave Mirbeau, who eventually bought it. Mirbeau showed *Leda* to Rodin, who was widely regarded as the great sculptor of the era, a towering figure in the life of France. Rodin—whose work, in direct contrast to Maillol's, concentrated on leashed energy and dynamic contortions—was greatly impressed with the purity and "luminousness" of Maillol's technique.

"The other day," Mirbeau wrote to Maillol, "Rodin came here. He picked up your Léda, just as I had done, and looked at it intently, examining it from every angle, turning it round in every direction. 'It is most beautiful,' he said; 'what an artist!' He looked at it again, and went on: 'Do you know why it is so beautiful and why one can spend hours looking at it? It is because it makes no attempt to arouse curiosity.' And there was a look of melancholy in his eyes. 'I do not know . . . of any modern piece of sculpture that is of such an absolute beauty, an absolute purity. . . .'"

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A tour de force of balanced volumes, and an emblem of serenity, *Night* (1907-09) resides in the Tuileries.

At the Salon d'Automne of 1905, the exhibition that introduced the Fauves to the world of avant-garde art, Maillol first showed a plaster of his nude entitled *The Mediterranean*. André Gide wrote of the Salon: "One goes up to the first floor to a smallish room, in the middle of which Monsieur Maillol's large seated woman is to be seen. She is lovely; she doesn't signify a thing. She is a silent work of art. One has to go far back in time, I believe, to find such a complete indifference to any concern foreign to the simple presentation of beauty." Over the years, Maillol would do several versions of this work, which many consider to be his masterpiece. It was to be his breakthrough to worldwide recognition.

With *La Méditerranée*, writes Bertrand Lorquin, curator of the Maillol Museum in Paris and author of a recent book on the sculptor, "Maillol heralds Brancusi's radically simplified volumes and Henry Moore's dislocations." The work represented the break between Rodin's 19th century and Maillol's beginning of the 20th.

For Maillol, indeed, straddled two centuries, spending about half his life in each, pointing the way to what was to come. Renoir, one of the masters of the 19th, took up sculpture himself after sitting for a masterful portrait head by Maillol. Matisse, who led the way to what was to become new in the 20th—his only peer was Picasso—so admired Maillol's work that he helped Maillol in wetting clay, an experience that later led to the creation of superb sculpture of his own.

A secret escape route to Spain

Maillol left Marly-le-Roi and Paris for Banyuls in September 1939, the year World War II began. There he continued to work on sculpture, painting and, as always, drawings. Fleeing the Nazi occupation, the great harpsichordist Wanda Landowska visited Maillol in Banyuls on her way out of France. John Rewald, whose book on Maillol was published in 1939, also stopped to visit before he left France in 1941.

During the seven years that Vierny had known Maillol in Paris, she had posed for three masterpieces, *The Mountain*, *The River* and *Air*, as well as for innumerable drawings and paintings. After coming to Banyuls in 1940, she posed for *Harmony*, his last sculpture, which he worked on for four years but never finished.

Vierny, who had been connected with a Resistance group in Paris, found Banyuls, so close to the Spanish border, a convenient place from which to help fugitives escape from the Nazis. Maillol offered his workshop in the hills as a way station, showing her a hidden path over the mountains to Spain. In the United States Holocaust Memorial Museum in Washington, D.C., there is a letter that documents Vierny's work. It was written in 1967 by Varian Fry, the American consul in Marseilles during the war. Fry had organized the American Rescue

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Photograph of Maillol's tapestry *The Bather* (1896) tops table set with his dinnerware in Banyuls museum.

Center, which helped people escaping from the Germans in France. In his letter, Fry refers to the "Aristide Maillol-Dina Vierny" route over the Pyrenees; it led from Maillol's studio in Banyuls to the frontier station at Port Bou. "You remember, I'm sure," Fry wrote, "that we used to send certain refugees to Maillol's studio, that Maillol himself had shown Dina Vierny, his buxom young model, the footpath over the Pyrenees to Port Bou, and that, on moonless nights, Dina used to lead the refugees over the Pyrenees by that route, to avoid the French border patrols."

Maillol spent his last years in the countryside around Banyuls, painting, drawing, working on his sculptures. "I'm enjoying myself," he told an early biographer, Judith Cladel, who had also written the definitive biography of Rodin; "nothing is eternal. People have a mania for thinking they're heroes!. . . One doesn't kill oneself for botching a work; one makes another one."

In 1944, on his way to visit a friend, the painter Raoul Dufy, Maillol was injured in a car crash on a mountainous road. He died soon afterward in Banyuls; he was 83.

Maillol's estate went to his wife and son, but the sculptor left a number of his works to Vierny and had made it clear that he wanted her to be the custodian of his legacy and art. His son, Lucien, in turn, gave more of Maillol's work to Vierny, and upon Lucien's death, the entire estate went to the former muse and model.

In 1947, Dina Vierny opened an art gallery on the Left Bank and built a successful business dealing in contemporary art. The idea for a museum in Paris devoted to Maillol came to her about 1964, during the time she was negotiating with André Malraux for the Tuileries project. Vierny never stopped working on the concept until it became a reality.

The crumbling 18th-century building on the Rue de Grenelle called the Hôtel Bouchardon, in which Vierny once occupied an apartment, is now part of the Maillol Museum. In front of the museum is a protected (and rightly so) national monument, the grandiloquent Fountain of the Four Seasons, created c. 1750 by sculptor Edme Bouchardon. Rising to a height of about four stories, the facade at the entrance to the museum forms a sweeping semicircular backdrop of neoclassical columns and pediments, with sculpted figures in niches.

Over the course of more than two centuries, the three buildings behind this imposing facade were a convent, a cabaret, a fish market, a photograph agency, apartments and studios. It took Vierny 30 years to purchase these buildings, set up a foundation, receive permission for renovations and, finally, empty the buildings of tenants and build the museum.

Designed by architect Pierre Devinoy, who also oversaw the renovation of Maillol's workshop for the little museum in Banyuls, the Maillol Museum opened in 1995. Devinoy created a four-story, light-filled, graceful structure of stone, wood and glass containing 27 galleries. Beneath a rough-hewn beamed ceiling, the entrance gallery confronts you quietly with its walls of white plaster and irregular stonework. It is filled with masterpieces. The immensity of *The River* and *Liberty in Chains*, the circulating grace of *The Three Nymphs* and the simplicity of *Grief* are overwhelming.

The River is massive, a figure on her side, her head lunging downward, limbs askew; it seems miraculous that, somehow, it appears to float. With all of its drama of size and gesticulation of arms and limbs, the figure is in balance. The relationships of arms, legs, head, feet and shoulders with each other and with the torso, all contained within a defined space, express Maillol's calm and harmonious view of the world. The body becomes a way of finding balance in the world. "One forgets," said Rodin after studying a Maillol sculpture, "that the human body is an architecture, a living architecture."

Vierny has kept a small apartment and office in the upper reaches of the museum complex, and close by her always there is a little sculpture in bronze, the study for another of Maillol's major works, *Night*. The diminutive nude is just seven inches high, and Vierny urges me to pick it up. I can feel the contours, how its volumes are

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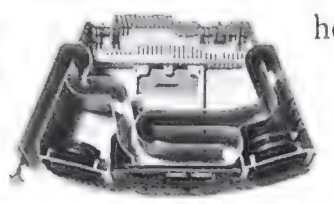

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balanced one against the other. I can feel Maillol's hand, his fingerprints. I can feel the life within it, its harmonious rhythm.

Besides the full survey of Maillol's oeuvre, the museum's galleries display works by his contemporaries and friends. These include Matisse, Bonnard, Gauguin, Redon, Rodin and Dufy. There is an entire gallery of drawings that Matisse made, using Vierny as a model; another gallery of Dufy's drawings; and a superb painting of Vierny by Bonnard. There are also exhibits on Surrealism, Dada and French primitivism; a small room devoted to the art of Marcel Duchamp and his two brothers, Raymond Duchamp Villon and Jacques Villon; a collection of work by avant-garde Russian painters, discovered by Vierny when they were virtual outlaws, before the Soviet Union collapsed; and a gallery reserved for current exhibitions.

You would think that all this might be enough to keep Dina Vierny fully occupied, but lately the idea of transforming Maillol's home and studio in Marly-le-Roi has been on her mind. The buildings are in very bad condition; architect Devinoy shakes his head in despair when he thinks of what has to be done and at what expense. In addition, work on the Paris museum is ongoing. Only two of the complex's three buildings are finished and open to the public.

So, Vierny is selling her collection of dolls and automata, called by the *Art Newspaper* the "Rembrandts of the doll world," at Sotheby's in London. And, at Druout's—which is France's version of Sotheby's—she will sell her renowned collection of manuscripts and autographs. (Both collections have since sold, bringing in a total of more than $30 million.)

She is telling me of these plans back in Banyuls, as we eat dinner in the house next to Maillol's. Vierny had bought this house in order to preserve the common garden that the two houses share. Maillol's house is being restored by Devinoy so that the public may come and walk through his rooms, see the place where he worked, look out the upper windows toward the Mediterranean as he must have done.

Yvon Berta-Maillol is there; we have been drinking the wine he makes. We are eating off Maillol's dishes. We are at the dessert stage. We eye the plum tart.

"Go ahead," says Dina Vierny, her dark eyes sparkling. "Enjoy yourself."

A gift from the artist to the city of Perpignan, this bronze rendering of his masterpiece *The Mediterranean* rests outside city hall. Maillol created several versions of the sculpture, which was first exhibited in 1905.

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By David C. Holzman

Nature's own pooper-scoopers keep Earth livable for all of us

A beetle uses its front legs to walk backward in a creekbed, rolling dung with the back ones.

If it were not for dung beetles, members of the scarab family, every terrestrial organism would be up to its eyeballs in you know what

Life on Earth is about cycles. There is the life cycle of birth, reproduction and death. Then there are cycles of nutrients that flow through the biosphere as plants and animals grow, then die and decay, bequeathing their building blocks to the soil, to future generations of flora and fauna.

There is yet another cycle—one that modern humans have short-circuited with indoor plumbing but that untrammeled nature completes with aplomb. Hold your

nose for a moment, and imagine the sheer volume of waste that the dense herds of great beasts that roam the savannas of Africa deposit willy-nilly about their very larder; enough to smother the source of their nourishment. Where does it go?

Were it not for the humble dung beetle, says entomologist Yves Cambefort, the savannas could not have evolved, much less the vast herds of herbivores that inhabit them. For the beetles bury the dung, sometimes within hours, storing tomorrow's food for them and their offspring. In the West African savannas, estimates Cambefort, who is coeditor of the 1991 book *Dung Beetle Ecology*, these industrious insects bury nearly half a ton per acre per year.

These beetles belong to a family with a better-known and far less repulsive name: scarabs. Worldwide there are 30,000 scarab species. Many are dung beetles; those that roll the dung are sometimes known as tumblebugs. The family also includes Japanese beetles and June bugs.

Besides clearing the ground, the scarabs' activity fertilizes the soil. Dung burial traps nitrogen, an essential element that is present as part of undigested protein and is released to the atmosphere whenever dung is left to rot upon the ground. Then, as the beetles eat, defecate and disperse the dung through the soil, they create that rich, dark earth called humus that holds water so well.

A story about dung beetles, then, is a story about a key cog in the cycles of life. It is no wonder that human beings are actually importing dung beetles to recycle the waste on ranches in countries whose native species are unable to handle the production of bovines. In Australia, for example, cow pies had been smothering the forage until an immigrant named George Bornemissza introduced Old World dung beetles Down Under in 1970.

And if the thundering herds of the savannas owe their existence to dung beetles, what about the dinosaurs? Last year, the first evidence surfaced that dung beetles cleaned up after dinosaurs. Exactly who are these creatures that play such an important role in the ecology of big animals?

If God created all creatures great and small, the many lifestyles of dung beetles, 7,000 species and still counting, would suggest a whimsical deity: Dr. Seuss as God.

There are dung beetles that fly into the rain forest canopy and roll balls of howler monkey dung on the

A Peruvian specialist (above) scrapes monkey manure from tree leaves. The horn on this Arizona species (below) may have something to do with sexual selection.

large, tropical leaves. Inevitably, beetles and dung roll right out of the treetops, and . . . *splat!* the dung flattens like Play-Doh on impact, but the beetles remold the ball and roll it away for interment. One species specializes in the ordure of sloths, living on those South American tree-hangers that defecate only weekly. Sloths bury their dung; the beetles merely have to be ready to jump into the hole at the appropriate moment. Small "klepto" dung beetles tunnel sideways off the vertical shafts of honest dung beetles' burrows to pilfer their stores. The biggest beetles, certain elephant-dung eaters, can attain three inches in length and are strong enough to pry themselves right out of your hand no matter how hard you hang on. These giants sculpt brood balls the size of croquet balls and bury them as deep as eight feet.

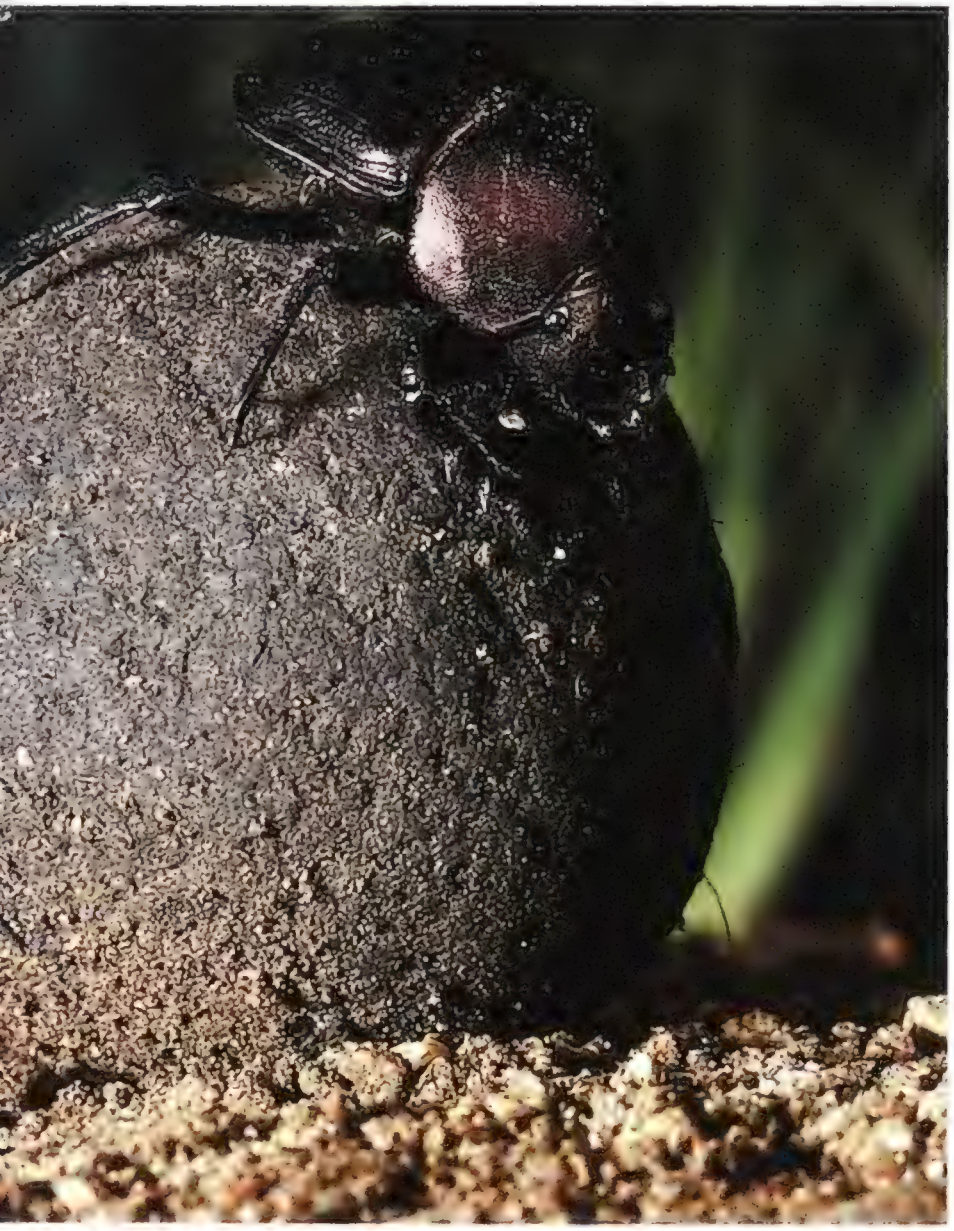
Fresh dung is high in protein. The ancestors of dung beetles are thought to have been detritivores (consumers of decomposing vegetation) that traded the abundant, but not very nutritious, decaying plant matter for the relatively rare riches of animal waste.

"Before the sun becomes too hot, they are there in their hundreds, large and small, of every sort, shape and size, hastening to carve themselves a slice of the common cake," is how the 19th-century French entomologist and writer J. Henri Fabre described the feeding frenzy of dung beetles. A paddy in a European pasture may attract 100 to 200 individuals at once, from 10 to 15 species, while in Africa, a fresh elephant pie will visibly writhe with the activity of thousands of dung beetles.

Not surprisingly, then, among coprophages (copro- "dung"; -phages "feeders"), competition is keen and combat is common. They fight dung-ball thieves from their own and other species, but they also fight to keep another beetle from the dung pile—as if there weren't hundreds or thousands more to take its place.

Cambefort observed one such struggle by a pad in South Africa when a large beetle stuck its head under an even larger one, raised its head suddenly and flicked the other beetle through the air. The competitor righted itself, but the latter flicked it again. Finally, the competitor appeared to give up and walk away. Down in Texas, dung beetles are called "scuffle bugs."

Dung beetles bury their booty to escape all this competition and to create a safe nursery for their offspring. There are beetles that tunnel directly under the pad, dragging dung down with them. These beetles are veri-



A male-female pair in South Africa (left) team up to roll a large ball. This Central American species (above) digs a vertical shaft beneath a cow pie for a larder.

Cutaway shows a brood ball buried below the surface. To get the picture, Mitsuhiko Imamori first loosened a patch of dirt. He then drove a yard-square plate vertically into the ground, leaving a few inches above the surface. When a dung beetle meets an obstacle, it buries its brood ball there. Once that happened, Imamori dug out the loosened dirt. He then removed the plate as gently as possible, exposing the ball.

table earthmoving machines. Others fashion balls and roll them away from the crowd. Still others simply dive into the dung where it lies, chow down, lay their eggs and leave them behind.

The tunnelers and the ball rollers, on the other hand, are unusual among insects for the care they lavish upon their progeny. The brood balls provide nourishment and a safe place to pupate. In some species, mothers and offspring may actually communicate by stridulating, or chirping, as crickets do. Entomologists have yet to decipher the meaning of these messages. The more creatures care for their offspring, the smaller the number of offspring they have. Most insects lay—and abandon to the whims of nature—hundreds or even thousands of eggs. Some species of dung beetle lay but a single egg in a season.

Following the demise of the dinosaurs 65 million years ago, new species of mammals burst forth upon the

THE BEST IS YET TO COME

BOEING

Egg is at top in this cross section of a brood ball. The larva feeds on dung. At last molt, it changes into a pupa, from which adult beetle will emerge.

globe. This evolutionary radiation is believed to have been matched by a parallel profusion of new dung beetles. It was the prodigious production of mammalian ordure that fueled the radiation of the coprophages, says Cambefort. The richer the mammalian fauna, the greater is the diversity and size of dung beetles. In the undisturbed savannas of Africa, 150 species coexist.

But few dung beetles feed upon the dung of either birds or reptiles, and in 1942, when a French scientist made the first suggestion that troops of dinosaurs were followed by dung beetles, he was being remarkably prescient. For until this decade, the oldest known dung-beetle fossils were just 40 million years old, 25 million years younger than the last dinosaurs.

That changed when Bruce Gill, a scarab student at the Canadian Food Inspection Agency, telephoned Paul Johnston, a paleontologist at the Royal Tyrrell Museum in Drumheller, Alberta. Gill had seen Johnston on television showing 76-million-year-old dinosaur nests he had brought back from a dig site in the Gobi Desert. Johnston had talked about burrows he'd found near the nests. Dung beetles, said Gill. When Johnston described large burrows with small ones on the sides, Gill called them the signature of the little klepto beetles.

Eventually Gill and Karen Chin, then a graduate student at the University of California, Santa Barbara, wrote a paper that pushed the age of the oldest known dung beetles to 76 million years. "This thing looks just like a modern-day piece of dung that has been colonized by dung beetles," says Gill. "It's kind of hard to relate to the fact that this is actually 76 million years old!"

The upshot of all this, says Gill, is that "there probably was a large, rich fauna of dung beetles during the age of the dinosaurs." Some of those dung beetles might have been substantially bigger than today's, he speculates. Further, the extinction of the dinosaurs could have caused a great extinction of dung beetles, and "only a few lineages would have survived."

The parallel radiation of dung beetles and mammals ensured that each species of dung beetle was well adapted to munching the dung of specific species. Hence, it is no surprise that the scarabs of Australia, adapted as they are to nothing larger than the little dry pellets of kangaroos, are useless against the avalanche produced by imported bovines.

By the time he settled in Australia, George Bornemissza had the background to solve the problem. "I was struck by the dung-littered pastures that stood in stark contrast to the pastures of Hungary, and I knew then and there that Australia lacked a suitable bovine dung-beetle fauna." A single cow could blanket 5 percent to

David Holzman is a correspondent for the Journal of the National Cancer Institute *in Washington, D.C. This is his first appearance in* SMITHSONIAN.

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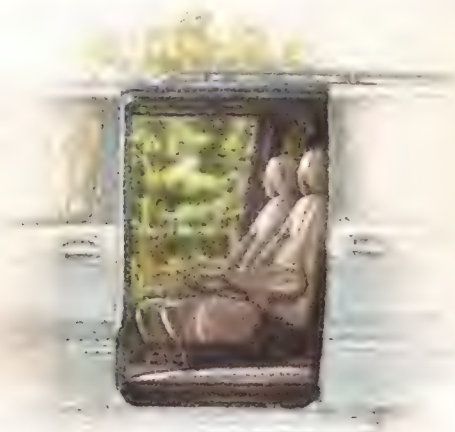

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The solution, Bornemissza decided, would be to import bovine dung beetles from Europe and Africa to recycle the dung. He single-handedly convinced the Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia's major national research institution, to back him.

Exotic species introduced to a new habitat frequently become pests, as gypsy moths and kudzu have done in the United States. But dung beetles, which are naturally present on every continent except for Antarctica, are less exotic in Australia than cows. Dung beetles pose no threat to crops, or to plants of any sort, because their mouthparts are soft, says G. Truman Fincher, supervisory research entomologist at the U.S. Department of Agriculture's research service. Nor are they likely to drive native Australian dung beetles to extinction, since their eating habits are so different.

Bornemissza had hoped to introduce about 150 species to occupy the various different cattle-raising environments. At his suggestion, only eggs, not beetles, would be imported, and the first-generation beetles had to spend their lives in isolation to ensure that other invertebrates that might have hitched a ride with the dung beetles would not get loose in the country. "I managed to pump through only 50 species from 1970 to 1982," says Bornemissza. Of those, only 32 have established themselves in the field. Nonetheless, at least one species of exotic scarab now inhabits almost every pasture in Australia, and some pastures host as many as seven.

Under the best circumstances, beetles have reduced fly populations by up to 90 percent, says CSIRO entomologist James Ridsdill-Smith. In some regions, however, the life cycles of beetles and flies are out of sync, so that the beetles are absent during the height of the fly breeding season. To fill the different ecological niches, still more species of scarab are needed. But CSIRO cut back the funding for the beetle program in 1986, and the introduction program that Bornemissza began was stopped.

There are native species of dung beetle in the United States, as in Australia, but they aren't always up to handling the huge flow on a cattle ranch.

In Oklahoma, Walt Davis, who has counted 11 native species of dung beetle on his 2,500-acre spread near Bennington, sings the beetles' praises. Although he concentrates his cattle in a single paddock at a time, "in the summertime, once the cattle have vacated a paddock, in 48 hours there is no manure left."

Getting the best out of the beetles, says Davis, "depends on working with nature, instead of against her." It takes more than dung beetles to keep the soil healthy, he explains, crediting earthworms, pill bugs, and bacteria and fungi in particular, and biodiversity in general. To preserve it all, the former practitioner of chemical agriculture now eschews pesticides and fertilizers. Agricultural chemicals, he says, account for the fact that "the neighbors within a mile of me don't have one dung beetle where we have 50." A 17-year U.S. program, which introduced about 15 species into Texas and Georgia, was shut down in 1987.

Scarabs could save U.S. farmers up to $2 billion a year, according to Fincher, by returning pasture to grazing, recycling the nitrogen that normally is lost to the atmosphere and reducing the populations of bloodsucking flies that stunt the growth of livestock.

The agricultural value of dung beetles parallels the religious significance of the sacred scarab in the lives of the ancient Egyptians. *Scarabaeus sacer* was worshiped as the power that propelled the sun across the sky. This was not a nutty idea in the context of the times, says Catharine Roehrig, associate curator for Egyptian art at New York's Metropolitan Museum of Art. "Forget what we have learned about the universe and astronomy in the last 5,000 years and use your imagination based on observation of the world around you," she says, alluding to the image of a beetle pushing its ball of dung across Egyptian sands. "Why shouldn't the sun be propelled through the sky by a scarab beetle?"

To the Egyptians, the phases of the sun represented the phases of life. "The beetle's development in the underground nest chamber, culminating in the appearance of the new scarab from the nymph, also resembles the daily resurrection of the sun, a promise of new life to the Egyptians," writes Yves Cambefort.

The scarab beetle is the ancient Egyptian hieroglyph for regeneration and renewal. Says Walt Davis, "It is just as important to the modern rancher as it was to the ancient Egyptians."

In an Egyptian papyrus from 1250 B.C., a scarab passes the sun to god Osiris after rolling it across the sky.

By Patrick Breslin

A family's quest for identity makes Irish eyes smile

When the author took his girls to the land his parents left, they were happy to see how much they had in common with their kin

We were at Dulles Airport, near Washington D.C., about to board our flight to Ireland, when my younger daughter, Glenna, looked up in consternation.

"Two jars," she said. "For my water."

"What water?" I asked, tickets and passports and suitcases on my mind.

"Water from my river. To bring a piece of me home."

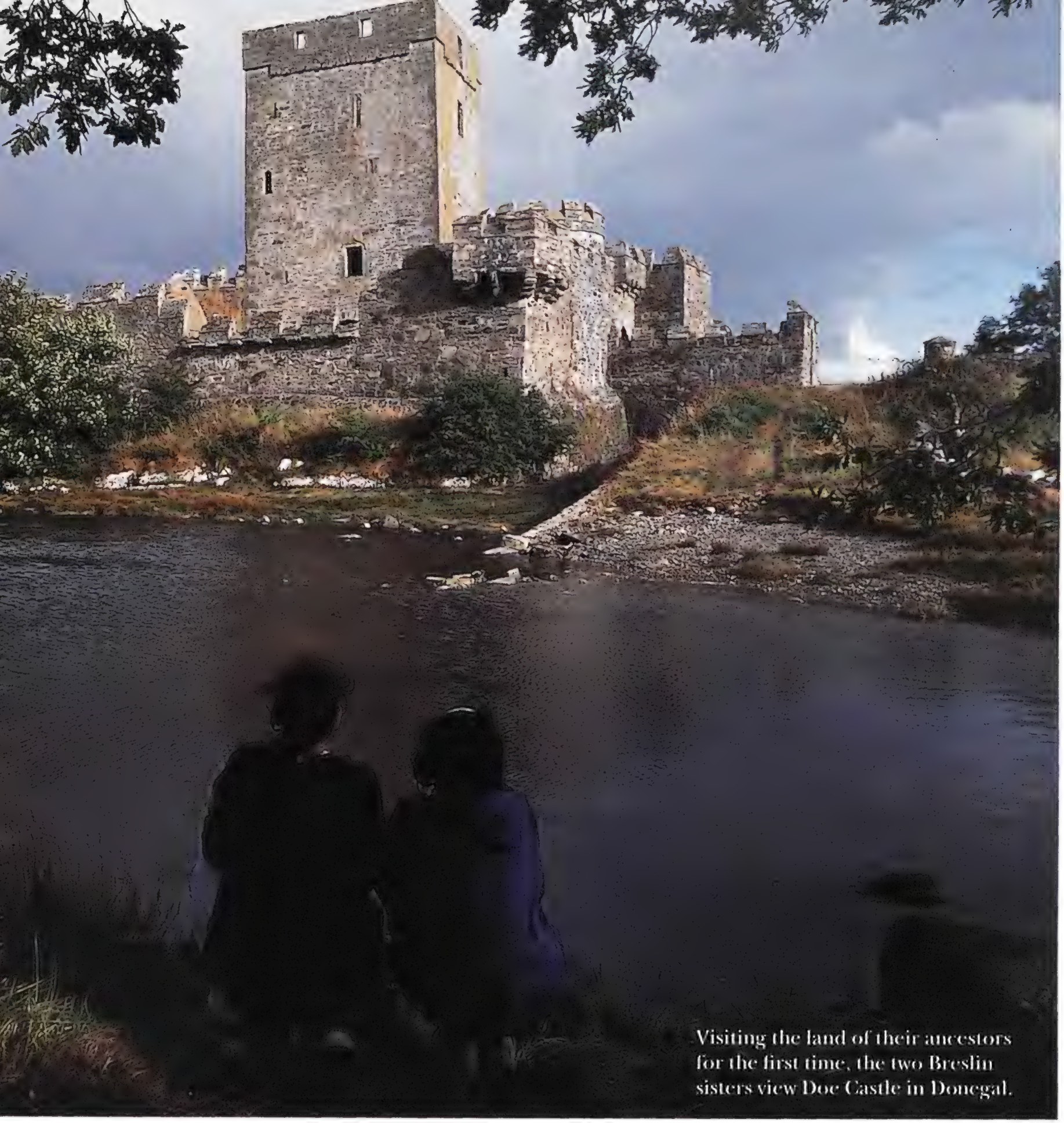
Glenna had been christened, ten years before, with the name of a river we planned to visit in County Donegal. "We'll find you two jars when we get there," I said. "I promise."

Glenna, her 14-year-old sister, Cathleen, and I were making a sentimental journey. We are among the 40 million people of Irish descent who call America home. Each year, thousands of these Boyles and McCarthys and Callahans and McEvoys journey to Ireland, driven by curiosity and a hunger to seek out their roots. The girls and I were similarly motivated, but unlike many of those other pilgrims, I knew exactly where we were going.

Both of my parents grew up on small Donegal farms in the parish of Cloughaneely, in a little valley nestled back a mile or so from the wild Atlantic. Eleven brothers and sisters on one side and eight on the other left Ireland. My mother and father emigrated separately to New York in the 1920s, married and settled there. One brother in each family stayed behind, and so it is that my first cousins still work those Cloughaneely farms. My daughters and I would be sleeping under the same roofs that once sheltered my parents.

I'd been planning this trip ever since Cathleen was born. I wanted my kids, growing up in a country locked on fast-forward, to have some connection to the past. When I was 11, my parents took my brother and me off the South Bronx streets for a magical summer in Donegal. In the intervening years, I'd returned several times. Ireland had become a part of my sense of myself, and I wanted my daughters to feel the same way. I was prepared to show them seacoasts and ancient forts, cottages and graveyards, and to teach them lessons about Ireland's proud cultural traditions.

They were about to teach me a lesson, too. The first



Visiting the land of their ancestors for the first time, the two Breslin sisters view Doe Castle in Donegal.

hint came at Shannon Airport after an overnight flight. As we left the terminal, Cathleen nudged her kid sister. "Look, Glenna," she said, pointing to a procession of flat-bottomed clouds floating across a serene blue sky, "it's just like the opening of *The Simpsons*." That somehow lacked any sense of the awe I felt at my own first sight of Ireland's impossibly green hills.

We drove a rented car up the scenic west coast, skipping many of the sights. I was in a hurry to begin introducing the girls to their ancestors. We ran into one of them sooner than I'd expected when we turned off the road outside the southern Donegal town of Killybegs, looking for a place for a picnic lunch. A narrow spit of land reaching into Donegal Bay seemed a likely spot, and we spread our meal on a mound where sod had buried a long-abandoned cottage. At the end of the spit were the indistinct ruins of what clearly had been an ambitious structure. An hour later, visiting the church in Killybegs, we came across the cover stone from the tomb of a 14th-century warrior. The carved figure on it brandished a double-bladed battle-ax and a short sword. His name was MacSweeney—my mother's name—

Photographs by Patrick Ward

Glenna Breslin enjoys tea (above) with her cousin Eamon and his wife, Maire, and offers grass to a cow (below) while her father, Pat, holds up a stone wall.

and this tomb cover had been found on St. John's Point. We'd chosen for our picnic the same spit on which a dangerous-looking relation had built his castle.

As we pushed farther north into Donegal's mountains and valleys, the broth of familiar names thickened. In Ardara, a sign advertised Breslin's Pub, where we learned that a branch of the Breslins had lived in that town for six generations. In a Glenties hotel we met members of the McLoone clan, into which one of my aunts had married. The next morning we reached Cloughaneely, and Glenna awoke just in time to smile hugely at the sign announcing the river Glenna. Another mile brought us into the hearty hugs of my cousin, Patrick, and his wife, Kathleen. This was my father's house.

Across the fields was my mother's. After a few minutes, we walked over there to greet my Sweeney cousin, Eamon, and his wife, Maire, who is Patrick's sister, and therefore my first cousin as well. The ancestral Sweeneys were gallowglasses, a clan of soldiers whose signature weapon was the doubled-bladed battle-ax. They came from Scotland to Ireland in the 13th century to fight for the O'Donnell family, then the rulers of Donegal. They may have expelled the Breslin clan from Donegal's Fanad Peninsula. Besides my parents, and Eamon and Maire, I know of three other Breslin-Sweeney marriages, so presumably no hard feelings remain.

By now Glenna was tugging on my sleeve, impatient to see her river. Back we went to the Breslin farm and, with all the available relatives in tow, down through Patrick's sloping seven acres of oats and potatoes and pasture, past straight stone walls my father had built, without mortar, more than seven decades before. Reaching the banks, Glenna picked her way over stepping stones to a large rock in the middle of the stream. From there, she carefully examined her river. "It looks very clear," she announced to her small audience.

The girls imbibe folk music in a local pub (above), go horseback riding with a guide along Ballyness Bay (left) and help their cousin Kathleen bake scones (below).

The Glenna rises in one of the small lakes at the foot of Mount Errigal, the highest peak in Donegal. It's only a few miles from the Atlantic Ocean at that point but in no hurry to get there. Its meandering course runs through a verdant fold in a bleak expanse of windswept peat bog shadowed by the silent, bare slopes of the Derryveagh Mountains.

From her rock perch in the river, Glenna poked for little shells. I watched her and remembered my father telling me how, as a boy, he would creep quietly to such a rock, peer down to find a sleeping salmon, slip the noose he'd fashioned from horsehair over it and then flip it suddenly onto the bank.

My cousins had tasks to resume. Patrick, a building trades contractor, once did much of the county's construction in that part of Donegal and is now building private homes as well as farming his land. Eamon, a full-time farmer, also hires out with his tractor to help his neighbors with their crops. Maire, who married late, and Kathleen, whose children are grown now, most of them with families of their own, have a never-ending round of chores—cooking, cleaning, taking care of the domestic animals. During the next few weeks, we would often come upon them and many other relatives in the midst of their work. We would stop to talk, ask questions and then take off again, busy on the tasks I'd set of hunting down markers of the family history.

Our forays repeatedly took us to lonely piles of stone. There was the farmhouse, now abandoned, where I'd stayed several days in 1951 with my Aunt Annie, my mother's sister, and her family. I reminisced to my daughters about oatmeal bread baking at the hearth and Annie plucking a chicken for Sunday dinner. But they were staring at a slanted ruin crushed by the fallen-in slate roof, sheltering only some bales of hay for a farmer who grazes his sheep nearby.

Sadder still was the cemetery where dozens of Sweeneys and Breslins lay buried and the names on the surrounding tombstones recalled relatives or family friends I knew as a boy. Cathleen and Glenna stood in respectful silence while I pointed out the names. Churchyards are one of the holy grails of people seeking roots, but the girls told me later that the sight of their own name on so many gravestones was sobering.

Next on the schedule were castles and forts, one for each side of the family. There was Loughadoon, a fortified island on a lake southwest of Cloughaneely that at least one historian believes the Breslin clan controlled around the 5th century. For the Sweeneys, I had Doe Castle, built in the 15th century, and the clan's seat of power for several turbulent generations. The ruins, framed by trees and lovely water views, are now a national monument.

"We should claim this," Cathleen suggested. "Fix it up." Cathleen has lived all her life in Washington, D.C. She knows real estate.

In both places, I had an ample store of history, legends and family lore with which to regale the girls. But their interest level was not always what I thought it should be. Returning to the car after visiting Doe Castle, I reminded them that Shakespeare opens *Hamlet* in just such a place. "To be or not to be," said Cathleen, jabbing the radio button. A rap song was on. Both girls squealed "omigod," and started bouncing.

That night, I lay awake examining my frustration about the trip. All those monuments and rock piles weren't speaking to the girls as they did to me. Was it my fault? I remembered the Italian guide in Mark Twain's *Innocents Abroad,* pulling out all the stops to impress American visitors who responded with mild interest but not much more. "Hundreds of years old," I could hear myself repeating. "Thousands of years old."

I'd been trying to impress the girls with history, the more the better. But children are creatures of the present. The hunger for roots, I realized, is an adult hunger. It comes from watching your parents grow old and die, and understanding that you have now moved to the head of life's stately procession into eternity.

My own first visit to Ireland hadn't been about history and stone ruins. My parents hadn't dragged me from abandoned cottages to deserted forts. Instead, they'd bought me a bike and turned me loose. Of course, back then, there weren't quite as many ruins to see. For one thing, all the cottages were inhabited, in many cases by relatives. Sweet-smelling turf smoke curled from the chimneys, and an aunt or cousin would set before me hard-boiled eggs and milk and bread with jam if I stopped in. There were barnyard animals to chase or coax into some sort of game, and adults who would pause in their tasks to ask how I was enjoying my summer.

The seeds of my interest in the Irish past might have been planted that summer, but they bloomed over four decades and half a dozen trips. Why was I trying to force-feed all that to my children in three weeks?

I started to slow down. Soon I noticed how the girls were filling their Donegal days much the way I had. Glenna volunteered to gather eggs every morning and began to learn all the hens' secrets. She was reported looking for eggs at the house next door as well, but Glenna insisted she was just searching for one of the cats. She and Cathleen adopted every cat they saw, turning them, to Kathleen's distraction, into pampered house pets, when what Kathleen wanted was lean and hungry mousers. From Eamon they learned to "foot" turf, as peat is called in Ireland, standing the moist slabs recently cut from the bog in a tepee to expose all the

Cathleen, Eamon and Glenna ride out to a peat pile; dried peat will be brought to the house for use as fuel.

Park and 47th
Attraction.

Park and 61st
Flirtation.

Park and 89th
conversation.

Cathleen gets a lesson in casting from her cousin Patrick, a savvy fisherman. They are trying their luck in waters Patrick knows well. Sandy Lake is located a little more than a mile from his house near Gortahork.

surfaces to the drying wind, so that it could be burned as fuel. Freshly cut oats are dried in a similar way, and Patrick showed them how to tie the sheaves of grain into bundles, then stand them up in the fields, leaning them against one another in a stook. Under Kathleen's watchful eyes, they learned to keep the turf fire going and to bake scones.

But while they were learning traditional farming skills, they were also seeing a Donegal much changed from the one I first knew. Patrick put it in context for me. "From the 1920s to 1951, when you first saw it, there was no real change. With the Depression and then the war, there were no materials, there was no building. It was in the 1960s and 1970s that the changes started to come: electricity, water in taps, new houses being built."

Cathleen made the same point when I asked her how it felt to be staying in her great-grandfather's house. "It's changed," she said thoughtfully. "It used to be an old thatch house. It's more modern now. So it doesn't have as much symbolic meaning."

Several of the changes were apparent during evenings at the local pub, a place called Teach Ruairi, just up the road from Patrick's house. I remember such pubs with a total clientele of two old men nursing a pint. Now, there's entertainment every night, and they're packed with German motorcyclists, French tourists, vacationers over from London or Glasgow or Northern Ireland, all listening to traditional Irish music.

One night, the talk at the next table was what country to emigrate to, where one could best make a living. But migration doesn't have the finality it did for people of my parents' generation. When they went to America, they didn't expect to return. Patrick's son, Paul, manages Teach Ruairi. He flew to the United States for two weeks in 1994 just to cheer on the Irish team in soccer's World Cup. "And didn't I see him on the screen when we watched the game at the pub," said his mother.

Paul is friendly and talkative, good qualities for a man who runs a pub. Cathleen and Glenna took to him immediately. He was closer to their age. He'd not only been in the States, he'd gone to Disney World. The conversation grew animated. Glenna offered her opinion that Splash Mountain was "way cool." Paul responded that it was "brilliant." They each owned pictures taken of themselves at the bottom of the ride, openmouthed and looking scared. Paul was obviously a reliable source

Pat Breslin has written previously for SMITHSONIAN *about flea markets, Mayan culture, Irish storytellers and recent developments in his native South Bronx.*

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At dusk, the author (left) reminisces with Patrick on the platform of an abandoned railroad station about their many relations who departed Ireland from that very place to begin new lives thousands of miles away.

for the information that truly matters. "So," Cathleen, the shop-till-you-drop teenager, wanted to know, "do you have J. Crew here? The Gap? The Limited?" Paul laughed. "This is Ireland," he said. "It's a small country."

Small, but hardwired to the world that Cathleen and Glenna know. They rattled on with Paul, comparing driving and drinking ages in their two countries. Names of rock groups such as U2 and the Cranberries flew back and forth. But if the girls were finding familiar reference points, they were also noticing differences.

"The kids here wear soccer shirts everywhere," Cathleen told me. "To dances, to church. Everywhere."

"But the girls don't play soccer here," Glenna, a deadly striker, chimed in. "At least judging by what Kathleen and Patrick say."

"The way the women, like Kathleen, are always working in the house," said Cathleen. "She always has tea ready. The men work outside."

"How everybody knows one another," said Glenna. We've lived in our neighborhood a long time and we don't even know everybody on our block."

Slowing down was paying dividends, and there were more to come. One morning, we went with a photographer friend to the miles-long sweep of broad strand near where the Glenna empties into the sea. We walked for hours between the lapping waves on one side and the 70-foot-high sand dunes on the other. Wild sea rushes grew up the slopes and lined the top. My father's people used to cut those tough rushes for their thatched roofs. The photographer and I walked ahead while the girls dawdled down the beach together, picking shells from the hard-packed sand, talking and playing. The photographer said he'd expected the difference in their ages to be more of a factor, that they would be less interested in each other's company. That's often the case at home, but in Ireland, I realized, away from the competing demands on their time and mine, they were closer to each other and to me. They hugged me more than I was used to. Cathleen, who has an impossibly full schedule of school and sports, friends and dances, was more relaxed. She found her Irish relatives to be invariably sweet. Her smile was lovely and rich, and she grew more beautiful every day. And Glenna returned again and again to her river, her satisfaction with it, her sense of possession of it, written on her face.

One night, we sat at the table with Patrick and Kathleen, sorting out shells the girls had gathered on the beach. And Patrick began to tell family stories.

Family is a hypnotic theme, talk of family pulls you in. The following evenings, instead of going out after supper, we lingered by the kitchen stove while Patrick had his tea and talked. One night, he unearthed a tiny, thin

Okay, you can't take it with you.

The least you can do is make sure he won't lose it, too.

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The Breslins respectfully examine the tombstones of family members laid to rest at a cemetery in Donegal.

notebook, its red cover stained and weathered. In it, our grandfather had composed, in the carefully shaped handwriting of the period, a farewell letter to his daughter Julia, the night before she and her sister Cassie emigrated to Australia. I read the letter aloud, conscious of the words echoing in the quiet house where they'd been written 83 years earlier, conscious, too, that in its mixture of practicality and poignancy, the reality of emigration was suddenly palpable for my daughters. After several paragraphs of advice and caution about the trip, Grandfather concluded:

"Now be very sure and don't neglect writing often home. You know how anxious parents are to hear from their children. Especially when in a faraway land. Our blessing go with you all through life is the sincerest wish of Father and Mother—"

The remaining pages contained names of people to look up in Australia and a couple of crossed-out calculations. Julia carried it with her all her life and brought it back to Donegal when she returned. It was among her papers when she died.

The girls' interest whetted, Patrick dug deeper into family files. He came up with the roll books from Grandfather's school from 1897 to 1911. The girls sat together looking through the books, seeing the now-familiar family names repeated over and over, finding the daily attendance records for both my parents. He found another notebook in which Grandfather had recorded the births of his children and, later, the dates they'd left home, and often the ships they sailed on. We discovered that Glenna and my aunt Winnie had been born on the same day, exactly one century apart. And I realized with some surprise that I was exactly the age my father was when he'd first taken my brother and me to Ireland.

The last night, Patrick told me how much of his knowledge of the family came from visits like ours, when someone comes back to reminisce and share stories. "I remember my father and your father sitting in this kitchen years ago, talking about the family, about who went where, and what they did, about the years gone by." Now, here we were, Patrick and I, doing the same thing. And I glanced at Cathleen and Glenna listening to us and wondered if they would be back here someday, tracing roots and branches of the family tree for generations yet to come.

The next morning, just before leaving, Cathleen and I went down to the river again with Glenna to help her fill the bottles. She had sampled water from different stretches of the river and finally settled on a spot near the bottom of Patrick's fields where twisted sycamore trees formed a canopy over a spring of cold, clear water seeping from the limestone banks. We filled canteens for the road and plastic bottles for Glenna to take home. After that, it was a quick round of sometimes tearful goodbyes. Going through Gortahork, we dropped in on Sean Haughey, one of Ireland's most renowned folklore collectors and a prominent local resident (SMITHSONIAN, February 1985). The girls had met him only briefly the previous week. "I don't even know him," whispered Glenna as we drove away, "and I'm going to miss him. I'm going to miss everything."

In the car's trunk, the suitcases were crammed with things they were bringing back: a chunk of turf; a tuft of wool; clam and periwinkle shells; a heavy fisherman's sweater; books of Irish fairy tales. And half a gallon of the river Glenna that now fills two handblown bottles sitting side by side on our windowsill.

The simplicity of water reminds me of what was important about the trip. I set out to give my daughters memories of castles full of romance, war and blood, mysterious forts in the center of ancient lakes, Celtic chieftains and medieval warriors as their ancestors, as well as intervening generations of poor peasants and immigrants struggling in strange lands. But from their conversations now, months later, the memories that remain lodged among the treasures of childhood start with the warmth of a kitchen where the kettle is always on the stove. Out of the blue, Glenna told me recently that she wants to go back to Ireland.

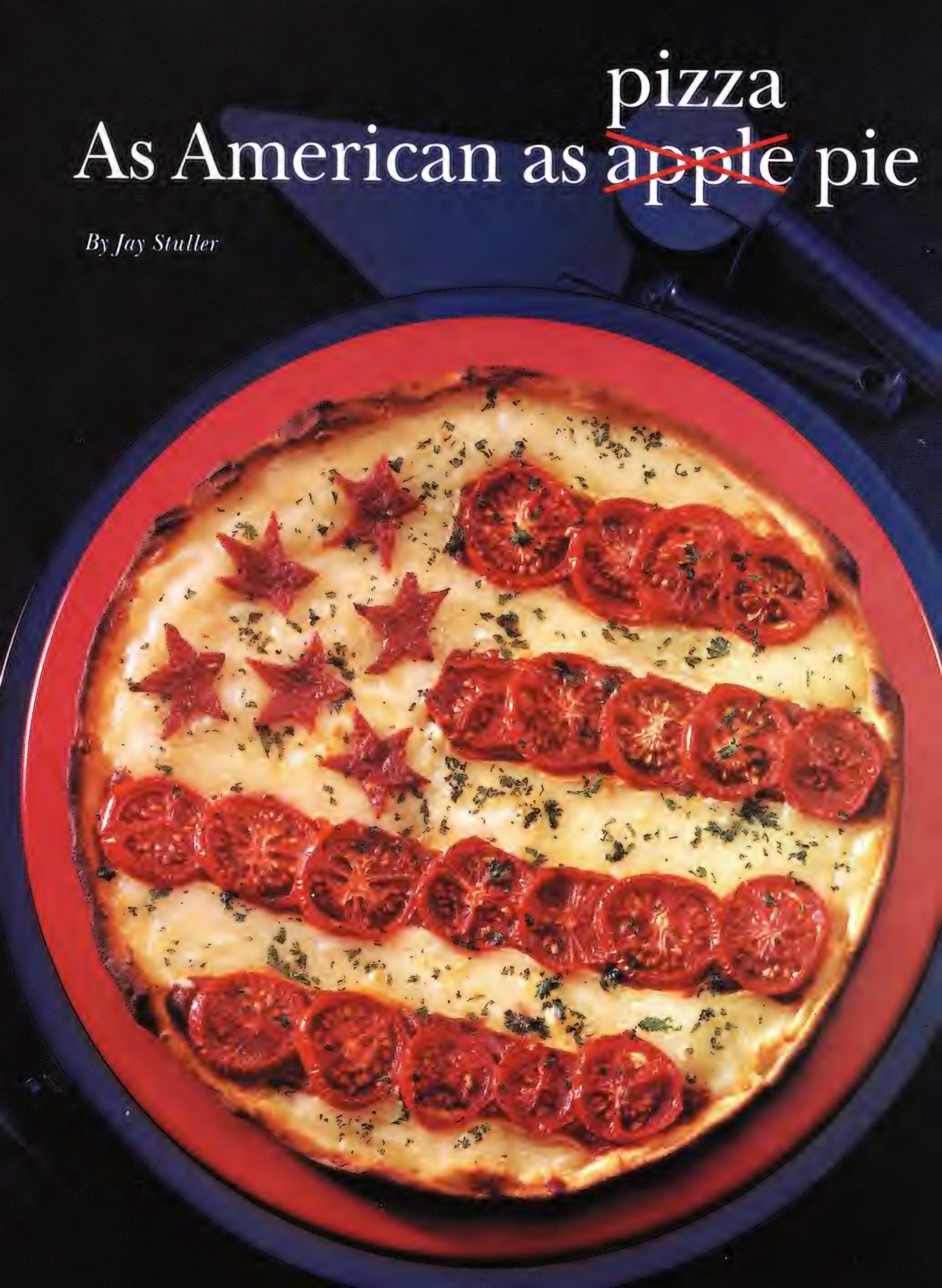
"Why?" I asked.

"I liked the mornings at Kathleen's. She made us tea and scones and eggs. And I like the turf we brought back. I still have some. And the wool. And my river. Plus, I just like Ireland."

Glenna collects some water from the river for which she is named to take back to her home in America.

As American as ~~apple~~ pizza pie

By Jay Stuller



Americans eat 350 slices every second, and pizza's popularity is soaring from Sydney to Moscow. For purists, however, Naples is still the one and only home of the genuine article

The pulse of the restaurant quickens around 8 P.M. as women in black dresses, seamless makeup and precise hair breeze into the bar. They mingle with meticulously dressed men while servers keep the drinks flowing. From downstairs in the main dining room comes a rhythmic yammer, part of the human energy that makes Postrio one of San Francisco's liveliest eateries.

Next to the bar and behind a counter, wearing a tall white hat that flops over her red hair, Robyn Robinett drives the heel of her hand into a ball of dough. With practiced dexterity, the energetic sous-chef pinches and stretches the dough, working it into a rough circle about ten inches across before giving it a theatrical toss into the air. She then sprinkles cheeses and meats onto the now perfect round and slides it into a small brick oven.

For all of Postrio's classy air, Robinett is making a dish that a lot of us simply pull out of the freezer and microwave or have delivered to our homes. "It does seem strange that I'm working in one of the top restaurants in the city but spinning pizzas for a living," she concedes. And yet, Robinett is not cooking just any kind of pie.

She is executing the recipes inspired by Wolfgang Puck, the celebrity chef best known for "designer" pizza at Spago in Los Angeles and who owns a piece of Postrio. Thus, with not a pot of tomato sauce in sight, she covers one pizza with slivers of duck sausage, sweet peppers, chives and tomatoes. Another has spicy shrimp, goat cheese, leeks, sun-dried tomatoes and fresh basil.

Along with my wife, Suzie, and two friends, I'm having a difficult time choosing because many of the toppings are not normally associated with pizza. "They're all pretty good," advises Robinett. "My favorite is the wild mushroom, but be sure to try the smoked salmon." For the latter, she takes a plain, toasty crust from the oven. Smearing it with a layer of crème fraîche, she sprinkles some dill on it and lays down the thin, pink salmon. Finally, the middle is topped with a mound of caviar.

Frankly, I had grave reservations about the merits of such foo-foo fare. After all, designer pizza and Domino's are not what you'd call compatible concepts. But Robinett's advice was good, very good. For me, the salmon pie blew away a lifelong notion of what constitutes The Perfect Pizza.

Actually, I've never met a pizza I didn't like. Make it from scratch or have it delivered; give me thick crust or give me thin; just give me a pizza lathered with tangy tomato sauce, generous amounts of pepperoni and olives, and smother that baby with as much mozzarella as the structural integrity of the crust can bear. From Perth to Pascagoula, I've found this basic pizza the stuff of an invariably satisfying meal. What's more, I've never had to look far to find it.

Pizza has become as ubiquitous as . . . well . . . it's hard to think of anything as prevalent these days. Just 92 years after Gennaro Lombardi opened America's first licensed pizzeria on Spring Street in New York City's Little Italy, there are now some 61,000 pizza restaurants in the United States—outstripping the country's burger emporiums. In most of America, a pizza is never more than a phone call away; some chains now even take delivery orders over the Internet.

Today's grocery stores are chockablock with premade crusts and fixings, their freezer sections a cornucopia of packaged pizzas. According to the National Frozen Pizza Institute, sales of frozen pizza increased 40 percent in the past six years, making it one of the grocery trade's hottest items. Thanks to the younger generation, the trend shows little signs of slowing.

A study several years ago by a home economist and a U.S. Department of Agriculture statistician found that in a three-day survey period, 42 percent of kids between the ages of 6 and 11 had eaten pizza. (Contributing factor: school cafeterias now serve pizza along with that execrable Tuna Surprise.) According to *Pizza Today* magazine, Americans consume more than 100 acres of pizza every day, or 350 slices per second, a volume for which I will not take full responsibility. Pizza now rivals the hamburger as America's national food.

Pizza is a basic sharing of bread

So what is it about pizza that's so captivating? Rob Doughty, a vice president at Pizza Hut, the world's largest chain, says his company has asked cultural anthropologists to figure out its epicurean allure. "They suggested that there's a certain power in pizza, because it's a very simple food that people often eat without using utensils, and because it's usually shared," says Doughty. "In a way, it's a modern-day version of the ritual breaking of bread. Our researchers found that families often set aside one night of the week for pizza, and use that time to slow down and reconnect as a family."

All that may be, but let's get to the fundamental truth. Pizza is tasty. Pizza is filling. Pizza is cheap. Pizza is fast. Pizza is, therefore, American.

That pizza is a U.S. invention is a lingering myth. The food definitely has Italian origins. But what has happened is that pizza's popularity in American culture has kindled cravings throughout the world. While it may never fill as many bellies as rice, the dish is adaptable to nearly all tastes and cultures.

"It's obviously a universally liked food and one that's

Michael Delacruz, Adem Salem, Matt Lifson and supervisor Steve Staiman take orders during the early evening rush at a Domino's in Rosslyn, Virginia. The store averages 250 orders a day.

very flexible," says Doughty, whose company operates in about 90 countries. "There are places where cheese is not a normal part of the diet and where food preferences are quite different from those in America. In Japan, for example, we use a lot of squid and octopus on our pizzas. Australians, no surprise, are big on barbecue toppings. In Russia we serve pizza covered with *mockba*, which is a combination of sardines, tuna, mackerel, salmon and onions."

Americans consistently rank pepperoni as their favorite topping. Anchovies always rank last. "Americans really tend to be in one of two camps," says San Francisco-based author James McNair, who has written two pizza cookbooks. "You have the people who see pizza only in its traditional American form, with tomato sauce and lots of cheese. And then you have the adventuresome types, who will eat the kinds of pizza you find at restaurants such as Postrio. It's a piece of bread that can accommodate just about anything you can imagine. There are great pizzas without a shred of cheese or a drop of tomato sauce."

The food has ancient antecedents, including Middle Eastern pita breads and the flat, seasoned yeast breads found from Morocco to India. The Italian-American Historical Society once suggested that Roman legionnaires stationed in Palestine started spicing up the local unleavened bread with herbs and olive oil. Thus, some have argued, the mother of pizza is the matzoh.

In Rome itself, within a century or so, citizens were eating round pieces of bread topped with seasonings and oil. Called *focaccia*, it served as an appetizer or a snack. Roughly 1,000 years ago, as these herb-and-spice-covered circles of baked dough grew exceptionally popular in Naples, the word *picea* began to appear in the Neapolitan dialect. While its origin is shrouded in ambiguity, etymologists think that it comes from an old Italian word that evolved into *pizzicare*, which can mean "to pluck" or "to pinch." This could refer to the way hot bread was removed from ovens.

Still, pizza as we know it could not have evolved until the late 1600s, when Old World Europeans overcame their fear of a New World discovery. Native to Peru and Ecuador, the plant known to science as *Lycopersicon esculentum* yielded a fleshy yellow or red fruit. It was grown mainly as an ornamental. Taxonomically a member of the poisonous nightshade family, the tomato was naturally viewed with suspicion.

Conquistadors brought the tomato home to Spain early in the 1500s. It took a good two centuries before Europeans dared to discover the tomato's utility. And it was the peasant folk of Naples, living by bread and not much else, who were the first to add the new ingredient to their doughy rounds.

Although travelers often ventured into the poor sections of Naples to

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Chuck Hammers, owner of Pizza a Go Go in Palo Alto, California, rushes along Highway 101 in his Hummer to deliver a pie while it is still hot.

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sample pizza, the dish remained a peasant's food. In 1830, however, it headed upscale with the opening of the world's first true pizzeria. Called Port'Alba, its pizzas were cooked in an oven lined with lava from Mount Vesuvius. The place was quickly adopted by the literati.

Modern pizza was born in 1889 when Queen Margherita, the consort of Umberto I, king of Italy, visited Naples. Raffaele Esposito, who owned a place called Pietro il Pizzaiolo, was asked to prepare a special dish in her honor. What else but a pizza with the colors of the Italian flag? Esposito used tomatoes for the red, basil for the green, and a never-before-used ingredient—mozzarella cheese, made from the milk of water buffalo—for the white. Pizza alla Margherita proved a hit with the queen—and with Esposito's regular customers.

At the turn of the century, Neapolitan immigrants who settled along the Eastern Seaboard may have made pizzas at home. Adapting to available ingredients—because water buffalo were scarce—they used cow-milk mozzarella and substituted marjoram for oregano. They cooked huge, wheel-like pizzas. (A big new country deserved enormous pizzas.)

Pizza was seldom found outside of Italian enclaves until after World War II. American G.I.'s who'd served in and around Naples returned with a hunger for it. Their zest, shared with friends and family, generated a demand. Pizza mania began to sweep the United States.

In New York, crowds formed outside pizzerias to watch pizza-makers toss spinning dough high into the air. During the golden age of television, Tennessee Ernie Ford brought on one Aldo Formica to demonstrate the amazing feat.

Non-Italians began to flock to places such as the original Frank Pepe Pizzeria Napoletana. Founded in 1925 in New Haven, Connecticut, it became a legendary hangout for Yale students and lesser minds alike.

With spare decor and no menus—the choices are posted on a bulletin board—Frank Pepe's pizzas are still cooked in a huge brick oven, with coal spilling from a door beneath the cook-

California-based Jay Stuller is still working off the weight he added doing spare-no-calorie research for this article, which he calls a labor of love.

ing surface. While rare, coal-fired ovens produce heat that's drier and more even than cooking with wood or gas; crusts come out perfectly crisp, yet not burned.

On Friday and Saturday nights, long lines snake back from the Frank Pepe entrance, with folks drooling in expectation of ordering a local favorite: white clams and bacon on a razor-thin crust, with a sprinkling of Parmesan. On occasion, when a sign goes up that says "No more clams tonight," a groan passes through the crowd and half the line fades away.

Back in the 1950s and 1960s, few of us were so fortunate as to live near a pizzeria. "Even then pizza was still considered a 'foreign food,'" says McNair. "We didn't have a pizza parlor in Jonesville, Louisiana. I didn't even see a pizza until I was a teenager. The only place to get one was in New Orleans, and it wasn't very good. My sister tried to make pizza from one of those packaged mixes, but it wasn't until I'd moved to New York that I really found good pizza."

Meanwhile, permutations developed. The classic Neapolitan pie has a

Robyn Robinett tosses one of the 200 pizzas that she will make in a day.

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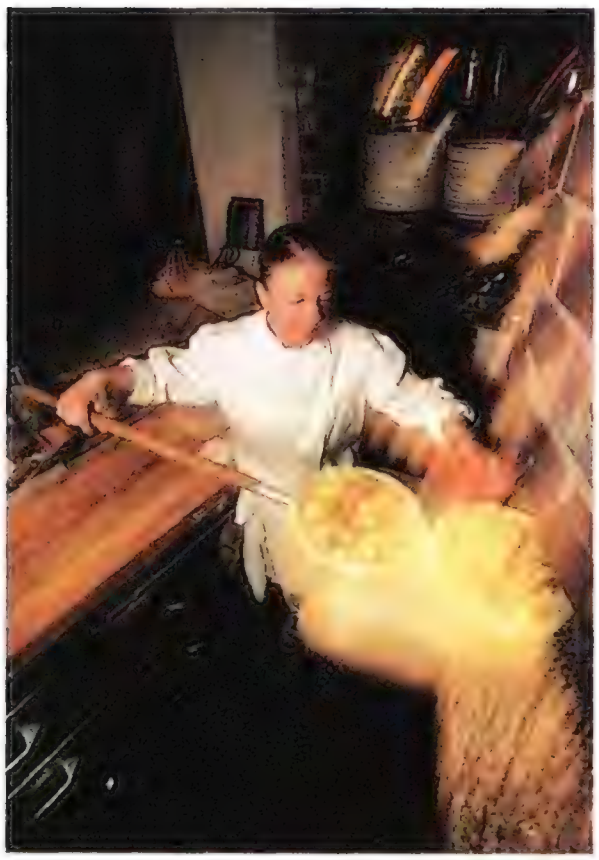
thin crust and is often spare in its use of tomato sauce. In the 1940s, Ike Sewell and Ric Riccardo of Chicago's Pizzeria Uno created the deep-dish or "Chicago style" pizza, cooking inch-thick crusts in pans. The so-called Sicilian-style also has a thick crust and is made in a pan, but it is often cut into rectangles or squares rather than wedges. According to the National Restaurant Association, thin-crust (regular) captures about 61 percent of all pizza orders; thick-crust (pan) takes 28 percent. The remaining 11 percent are ultra-thin.

Each style has its adherents, absolutely certain and sanctimonious over which kind is best. But given that pizza is today a $32 billion industry in the United States, there are more than enough options to satisfy every taste.

Specialties at Postrio in San Francisco include, left to right: wild mushroom with garlic and leek; duck sausage with sweet red pepper; and smoked salmon.

All the creativity is not universally applauded. Two years ago a delegation from Naples, the home of the real thing, toured the United States trying to sort out what is true pizza and what is not. The criteria, adopted by the Naples Pizza Association, include punching the dough out by hand, an oven of brick or similar material heated by wood, and a crust well done but not crusty, with a high, soft edge. In Naples it is the crust that determines the quality of the pizza.



Robinett slides wild-mushroom pizzas into the oven with a special paddle.

Even in Naples itself, however, controversy reigns. At the request of the city, Carlo Mangoni, a professor of nutrition, has researched and written a 42-page treatise defining true Neapolitan pizza. Only mozzarella from two regions of Italy, both types made with the milk of water buffalo, may be used, for example. And the mozzarella must be kept separate from the dough while cooking, lest unfortunate reactions take place. The city's ultimate goal is to establish standards so that an establishment selling the real thing can display a symbol on the door. The right to use the symbol would be voided if the restaurant were to flaunt tradition by adding, say, pineapple to its pizza. Nearly all pizza sold in the United States, by the way, is considered to be distinctly non-Neapolitan.

Classic ingredients do dominate America's pizza landscape, a fact documented by mozzarella consumption. In 1970, we ate 1.2 pounds of mozzarella per person. By 1995, Americans ate almost 8 pounds of mozzarella per person. "Some of this cheese is obviously going into other kinds of ethnic dishes, from pasta to various Mexican foods," says the USDA's Judy Putnam. "But I think you can attribute most of the mozzarella growth to pizza." Indeed, Pizza Hut is the world's largest buyer of such cheese, enough to keep 250,000 cows gainfully employed.

Pizza Hut was founded in Kansas in 1958 by brothers Frank and Dan Carney, when the Wichita State University students borrowed $600 from their mother, bought some secondhand equipment and rented a small building at a busy Wichita intersection. When they had a sign painted that said "Pizza," it had room left for only a three-letter word. "Hut" it was.

The boys did well, selling franchises throughout the United States, Mexico, Australia, Europe and Africa. Eventually acquired by PepsiCo, the chain now has more than 8,000 restaurants, from Kuwait to Guatemala, from Hong Kong to the Netherlands Antilles. Worldwide sales exceed $5 billion.

Such numbers breed competition. In the 1980s, Domino's emerged as a player on the national scene with a pick-up and delivery operation. Domino's made its name by guaranteeing its pizza would arrive at your door in 30 minutes or less. The strategy worked,

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although the company eventually had to drop its half-hour promise; delivery drivers determined to beat the clock turned into a liability problem.

Strange Pizza Story Number 74: In the 1960s, in the town of Medford, Wisconsin, brothers Ron and Joe "Pep" Simek ran a tavern called the Tombstone Tap, which, of course, was just across the street from a cemetery. One night, while dancing the Peppermint Twist, Pep slipped and broke a leg. Stuck on crutches, he began experimenting in the Tap's kitchen, mixing up sauces and doughs for pizzas he intended to sell at the tavern. His creations were soon ordered by local bowling alleys and other taverns. The brothers went into a new business, selling pizzas packed in dry ice out of the back of a 1959 Cadillac. In the 1970s, they built a pizza plant in Medford. Despite distribution struggles, the oddly named Tombstone Pizza built a Midwestern following.

Kraft Foods bought Tombstone in 1986, and with the food giant's muscle behind it, the line turned into America's leading brand of frozen pizza, with sales of more than $330 million.

James McNair insists that nothing can match a pizza cooked at home, from scratch. Of the 30 cookbooks he's written, *Pizza* is by far his best seller, with more than 500,000 copies in print. "I know that a lot of people are intimidated by the idea of making pizza from scratch," says the courtly McNair, "but once you've done it there's just no comparison."

His recipes are incredibly eclectic, pushing the boundaries of what most of us think of as pizza. One features "kung pao" shrimp; another, garlic-glazed chicken on a whole-wheat crust. His vegetarian offerings include spiced-pumpkin pizza and a spinach pie. "My personal favorite," he says, "has a plain crust brushed with olive oil and is covered with vine-ripened Italian plum tomatoes, thinly sliced garlic cloves and some fresh basil or oregano leaves. Once you've learned to make the crust, it's easy."

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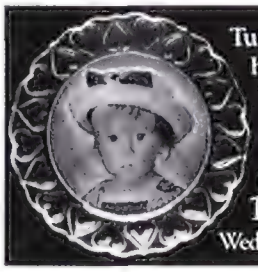
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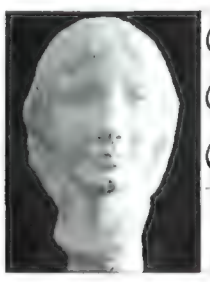
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Dora Franceschi serves up *focaccia* with green onions and tomatoes at Danilo's Bakery in San Francisco.

And so, under the watchful guidance of Suzie, I add a few cups of semolina flour to yeast, water and sugar, mix it in the food processor and knead it into a ball. After the dough rises and is then refrigerated for a couple of hours, I spread it on a pizza screen (a wire-mesh baking round). Covering it with mozzarella, Parmesan cheese, Italian plum tomatoes, olive oil and shredded basil, I put it in the oven, preheated to 500 degrees. In ten minutes, without incident, I actually had pizza alla Margherita, the original, tricolor Neapolitan royal pie.

Thus emboldened, I returned to Postrio for a lesson on pizza spinning from Robyn Robinett. She explains that she and her four assistants typically crank out more than 200 pizzas, along with the other items on the menu, in a shift that runs from 11:30 a.m. until 1 the following morning. "None of these pizzas is very heavy," she explains. "Our bakers make the dough and it's pretty basic, with olive oil, salt and a touch of honey."

Behind the counter, Robinett shows me how to flatten the dough and pinch the edges to form the outside crust, then lift the dough and turn it in half-

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circles, stretching it carefully. Next to me, an assistant cook watches with an amused smile when my dough develops a gaping hole. "Don't feel bad," he whispers. "It took me five weeks to get the mechanics down."

Some pizza spinners are naturals, and others just need practice, adds Robinett, as I reform the dough and get the round into better shape. "Now, toss it into the air with a spin, so it will fall flat onto the workspace."

"You pros send the dough flying just to show off, don't you," says I.

"A lot of people think so, and it's one of the most fun parts of the job, when folks at the bar crowd around to watch," Robinett explains. "But there's a reason for doing it. The centrifugal force turns the dough into a better circle. It's really quite practical."

My pizza flops onto the counter, approximately round. "Jeez, maybe he's one of those naturals," says the assistant cook.

The questions remain: Is the world's greatest pizza a thick-crust Chicago-style pie awash in tomato sauce and straining under piles of mozzarella and pepperoni? How do McNair's homemade recipes compare with Puck's wild-mushroom or smoked-salmon "designs"?

It's hard to know. I've consumed every type of pizza imaginable, save for that Russian one with the seafood topping. I've eaten pizzas in Japan and West Africa, in Australia and Europe, and by now in at least 27 U.S. states. And anchovies notwithstanding, I can honestly say I've yet to meet a pizza I didn't like.

Elena Chiavacci, all of 13 months old, tucks into a pizza alla Margherita—the classic pie—at Calzone's in San Francisco. Her mother says she loves it, except perhaps for the basil.

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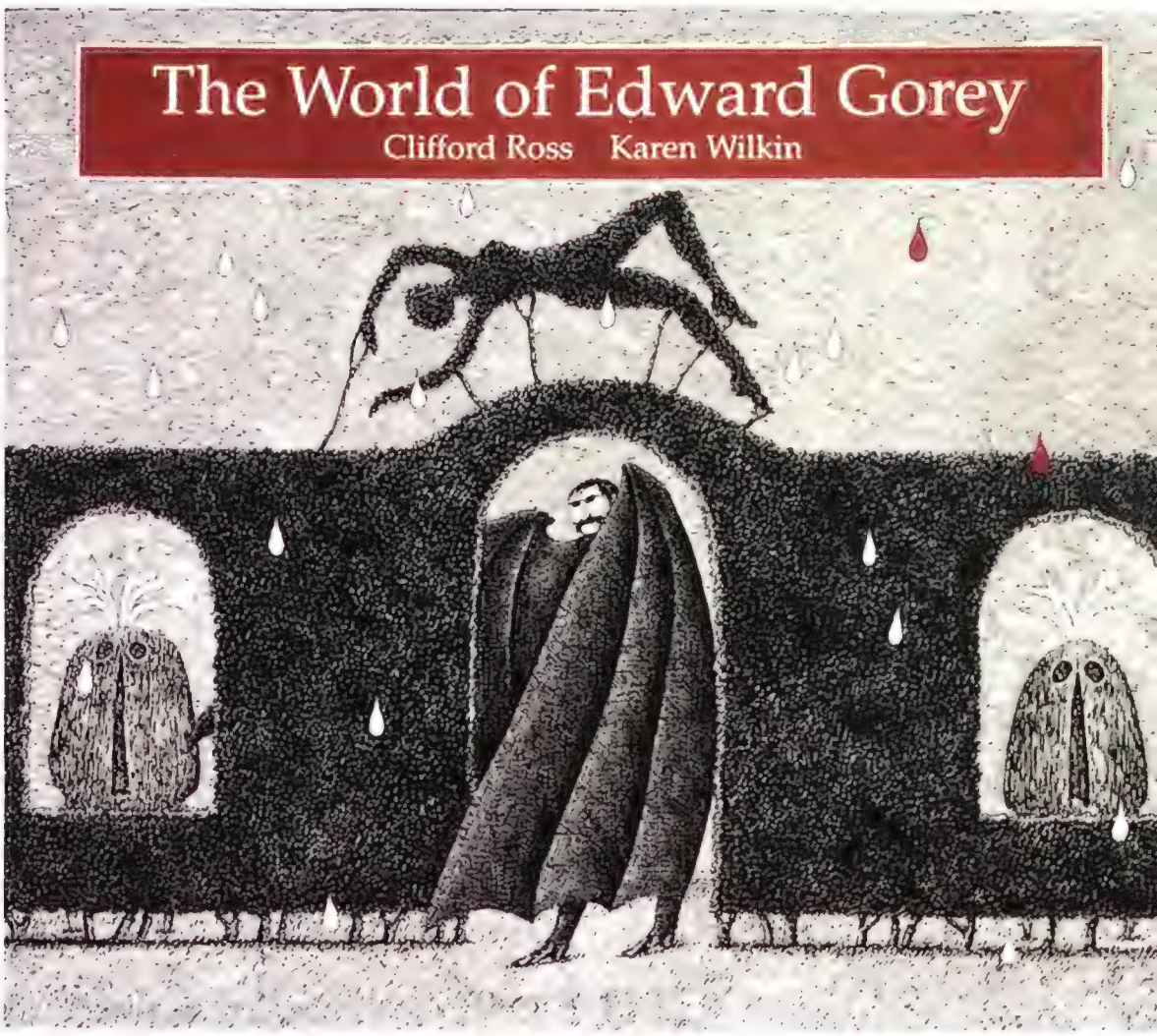
Book Reviews

The World of Edward Gorey
Clifford Ross and Karen Wilkin
Abrams, $29.95

To look at an Edward Gorey drawing is to cross into a turn-of-the-century twilight zone, a faded black-and-gray realm where bats—or possibly umbrellas—swoop above the shrubbery, buildings appear as attractive and sturdily built as the House of Usher, and everything feels autumnal, crepuscular, rain-swept and more than a little menacing.

In Gorey country, ancestral manors, like the stately homes glimpsed in opening titles for the PBS series *Mystery!*, are usually inhabited by languid, swooning flappers and mustachioed Edwardian gentlemen with a taste for brocaded dressing gowns or heavy fur coats. That introductory sequence f *Mystery!* is probably the artist-illust tor's most recognizable work. He al has, of course, delighted theatergoe with his set designs and costumes. F niture runs to divans, large urns, ga bos and allegorical garden sculptu such as the oft-admired "statue of C rupted Endeavor." Down the lon hallways one may, from time to tim glimpse a newt-like beast or a polt geist or possibly a dogged policem on the trail of a murderess. For t most part, everyone strikes poses, li the more histrionic characters in o of the gloomier plays of Chekhov.

City life is no better, and can in fa prove far more vicious. An opera f named Jasper Ankle grows increasing insane, dispensing with the rivals a



overs of his favorite diva. A very disurbed couple, with a particularly sanguinary hobby, meet "at a Self-Help nstitute lecture on the Evils of the Decimal System."

"Beware of this and that," warns a droopy raven in *The Epiplectic Bicycle.* And admirers of Gorey's little albums, gathered in three omnibus volumes (*Amphigorey*, *Amphigorey Too* and *Amphigorey Also*), know that his pictures suggest, like episodes from a fin de siècle version of *The X-Files*, that "much more is happening out there than we are aware of."

It is, for instance, no surprise that Gorey's favorite reading should fall under the category he calls the "sinister ooze." In his interview with Clifford Ross (the first part of *The World of Edward Gorey*) the artist admits to having devoured all of Agatha Christie's mysteries at least five times. He is also a devotee of Fantomas—the fictional master criminal in the novels by Marcel Allain and Pierre Souvestre—who once replaced the perfume in a department store's atomizers with sulfuric acid. And Gorey's *The Loathesome Couple* is even dedicated to W. N. Roughead, revered for his elegantly witty accounts of domestic murder. The tone of many Gorey booklets—especially the alphabets and limerick collections—often recalls the jaunty black humor of Hilaire Belloc's *Cautionary Tales.*

Nearly everyone, including Karen Wilkin in her extended essay in *The World of Edward Gorey*, speaks admiringly of the artist's meticulous crosshatching and melodramatic, gothicky vision. (Gorey, of course, maintains that he merely depicts the random vicissitudes of ordinary life.) Not enough praise, however, has been awarded to Gorey's superb prose: he possesses the ear of a great parodist, and indeed virtually all his albums are pastiches of some previous genre, from the classic mystery (*The Awdrey-Gore Legacy*) to Victorian melodrama (*The Green Beads*) and Winnie-the-Pooh (*The Untitled Book*). The perfectly balanced periodic sentences owe something to the laconic campiness of Ronald Firbank and to the affectless dialogue and humor of Ivy Compton-Burnett. At the beginning of one Compton-Burnett novel, *The Present and the Past*, a group of children watch a sick chicken being pecked to death. Gorey opens *The Loathsome Couple* with a comparable scene: "Harold Snedleigh was found beating a sick small animal to death with a rock when he was five years old."

Perhaps this master's greatest set of parodies (on a par with Gorey's *The Unstrung Harp*, *The Willowdale Handcar* and *The Blue Aspic*) is the collection of "cycling cards" that make up *The Broken Spoke.* The postcards, each of which pictures a bicycle, imitate primitive cave art, William Blake watercolors, religious paintings, French posters, the exploits of Victorian explorers and even Gorey himself. The captions are

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as delicious as the artwork: "Bicycle worship in the Tedila Archipelago"; "Innocence, on the Bicycle of Propriety, carrying the Urn of Reputation safely over the Abyss of Indiscretion."

In *The Unstrung Harp* the novelist, Mr. Earbrass, goes to a literary party. "The talk deals with disappointing sales, inadequate publicity, worse than inadequate royalties, idiotic or criminal reviews, others' declining talent, and the unspeakable horror of the literary life."

Perhaps this last explains Edward Gorey's own retirement to Massachusetts. Indeed, along with the book's 200 line drawings and 24 color plates, the best part of *The World of Edward Gorey* may be the photographs of the artist's dilapidated, book-strewn house on Cape Cod. Though Ross' interview and Wilkin's essay are both illuminating, the real Goreyphile yearns for even more detailed biographical information—about Gorey's nearly 30 years of faithful attendance at all the performances of the New York City Ballet, about his work as a cover artist for Anchor paperbacks, about precisely how he creates his distinctive artwork.

Doubtless other books will be written about the irresistible Edward Gorey. After all, only a few other comic imaginations—P.G. Wodehouse and Garrison Keillor come to mind—have created worlds at once so utterly familiar and yet so completely original.

Michael Dirda is a writer and editor for the *Washington Post Book World*.

"Mr. C(lavius) F(rederick)," as Gorey's caption in *The Unstrung Harp* (the author's first book, published in 1953) informs us, "is, of course, the well-known novelist."

Silver Rights
Constance Curry
Algonquin Books, $21.95
Harcourt Brace, $13 (paper)

His Promised Land
John P. Parker
edited by Stuart Seely Sprague
Norton, $20

The history of the civil rights movement of the 1960s has by now been boiled down to a paragraph in the minds of many high school students; it is ancient history to a generation that has moved on from freedom songs to gangsta rap. This is a loss for all of us, for the heart of that history is still beating, its voice is still speaking. *Silver Rights*, a riveting memoir of one African-American family's fight to send their children to the segregated white schools of Drew, Mississippi, is a reminder not only of the gains we have made in this country but of the spirit we often seem to have lost.

The author, Constance Curry, was a field representative of the American Friends Service Committee (AFSC) who tried to help the Carter family live through its ordeal of intimidation, reprisals and insults as seven of its children became the only black students in Drew's white elementary and high schools in 1965. (An eighth would join them in 1967.)

The voices in the book are mostly those of the Carters, through Curry's interviews and the many letters Mae Bertha Carter wrote to the Friends' headquarters as one crisis followed another. As a result, the book has an immediacy, intimacy and emotional truth that history rarely reveals. It also unfolds with a simplicity of words and facts that make the Carters' courage, faith and love a reality any reader can share. Even the title of the book is a reflection of that language. Among the rural black families of the Mississippi Delta, the bureaucratic term "civil rights" was translated as the dream of "silver rights."

To tell this story, Curry spent the past few years renewing her friendship with the Carters, interviewing the grown

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children, trying to set the events of the 1960s in perspective. The Carters were a sharecropping family on a cotton plantation outside of Drew when Mississippi, under threat of losing federal funds, came up with a "freedom of choice" plan to circumvent federal law. Families like the Carters could sign papers to send their children to all-white schools, but both blacks and whites knew what would happen to families who made that choice. "If they don't get you in the wash, they'll get you in the rinse," Mae Bertha Carter told a visiting minister from Ohio who supported the family.

The Carters were threatened with eviction, and found credit in local stores cut off and their home shattered by gunshots in the dark, forcing them to sleep on the floor in fear. Spitballs and insults rained on the children as they rode the bus to a school where life was no easier. "I hated history class," one of the older boys recalled, "when we covered the Civil War and the teacher said 'nigger' and allowed the students to say it like I wasn't even there."

It was the Carter children who made the choice to go to the white schools. None of them ever went back to the black schools, which had split sessions so that students could work in the cotton fields. "What I hated most was being in the cotton field and seeing the white school buses pass us by while we were picking," the oldest girl, Ruth, recalled. But Ruth also came to hate her days at the white school. "During that time, it seemed like I was filled up with hate. I hated Mississippi, I hated the white man. I hated my teachers. I hated everything. Then we started having these little sessions at home in the afternoon after school. It was almost like therapy. We would sit down and Mama would say, 'How did things go today at school?' We would talk about what happened and a lot of times we would cry together. . . ."

As Ruth reconstructed those afternoons, it was her mother's voice she heard reverberating in her memory. "If Mama heard me say, 'I hate white people, I just can't stand them,' she always answered, 'Don't you ever say that. Don't you ever say that you hate white people or anyone—it's not right.' . . . The other thing she wouldn't let us say was that we wished we had never been born."

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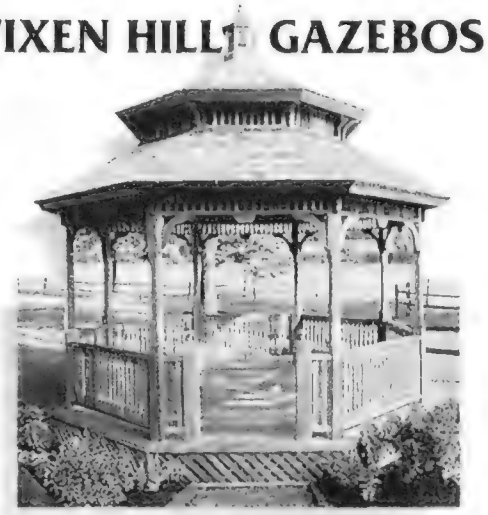

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Nevertheless, the pressures on the children were brutal indeed. The youngest, Carl, who entered the first grade in 1967, recalled the weight of isolation. The next year, in the second grade, he simply tried to flee. "Not having any playmates . . . made me feel bad. . . . I just left the schoolyard one day and came home. I was only seven . . . I told Mama that I had walked all the way home and I wasn't going back. I said I was sick, got in bed." But the next day he was back, his main refuge being his excellence as a math student.

Mae Bertha and her husband, Matthew, guided their children through the worst days with a courage and faith that was the heart of the civil rights movement, but they could not have done it alone. Through civil rights workers like Constance Curry, word was spread, and people of goodwill in many places became sources of support for the Carters.

Here, for instance, is what happened when the overseer ploughed under the Carters' cotton crop before they could pick it:

"Even with no money from the cotton crop, the Carters were able to survive November and December. Amzie Moore [a black veteran who had come home and helped organize a local NAACP branch] brought food, the Boulder Friends [in Colorado] continued to send lunch money, the AFSC sent small grants, the Morningside Gardens Civil Rights Committee in New York City contributed clothing and money, and some canned foods came from a church in New Jersey." And on the day when the overseer did not show up with the family's customary $15 for their car's annual license plate fee, "Fannie Lou Hamer, by then a leader in the Mississippi Freedom Democratic Party, brought Mae Bertha the tag money."

Reading this book is a reminder of the deep interconnectedness of our lives, of the power of conscience when people care about and for each other, and are willing to act with love against the force of hatred and violence. Seven of the eight Carter children who desegregated the schools of Drew later graduated from the University of Mississippi, where the first black student to enroll needed an escort of U.S. marshals. The spirit that sustained them was expressed in a letter from Mae Bertha to Constance Curry in May 1966: "I went

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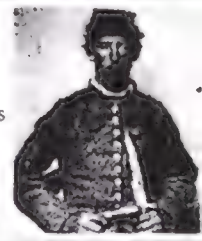

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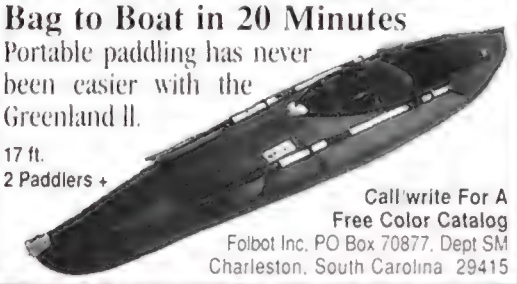

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to church on Sunday and my preacher preach about love one another—it don't mean Negro only—it means everybody, white and black."

If civil rights seems like ancient history to today's students, it's hard to imagine anything that would rescue the abolitionists and their Underground Railroad from the dustbin of our history. But *His Promised Land, The Autobiography of John P. Parker, Former Slave and Conductor on the Underground Railroad* is the book to do just that. This is an amazing tale, told by the elderly Parker in the 1880s to a Southern newspaperman, and never published until now. The manuscript, dusted off from the Duke University archives, begins with Parker, only 8 years old, being marched in chains from Virginia to Alabama, on a mountain trail full of flowering azaleas and mountain laurels: "Every thing," he would recall, "seemed to be gay except myself. Picking up a stick, I struck at each flowering shrub, taking delight in smashing down particularly those in bloom. That was my only revenge on things that were free."

Parker's account is always vivid, often violent, and told with a sharp eye and bold directness that makes events spring to life. An attempted escape from slavery led to several captures and brushes with death along the Mississippi; after that he convinced a Mobile, Alabama, woman to buy him and let him work in a foundry and buy his freedom with his wages. Heading for Cincinnati and then Ripley, Ohio, he began a life of nighttime forays back into slave-holding Kentucky to help fugitives escape.

As a free black man in Ripley, he ran his own ironworking business, owned his own house, married and prospered. (Parker succeeded in creating the conditions that made a better life for his six children. He was passionate about the importance of a college education; his three sons and three daughters all became teachers. The firstborn son, Hale Giddings Parker, completed the classical program at Oberlin College in 1873. One daughter, Hortense Parker, was among the first African-American graduates of Mount Holyoke College.) But he risked everything to join Ripley abolitionists in helping fugitive slaves, guiding them out of the Kentucky woods, hiding them in their houses and sending them north on the Under-

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ground Railroad to freedom in Canada.

Proslavery neighbors and bounty hunters from the South suspected Parker, but never succeeded in catching him. "I never thought of going uptown without a pistol in my pocket, a knife in my belt, and a blackjack handy," he recalled. Parker tells many stories here of bravery among the fugitives, and his escapes from ambushes and shoot-outs. No Hollywood thriller could match this tale. It's the real thing.

But, like the bravery of the Carter family in *Silver Rights*, Parker's story is a reminder of how closely the threads of our lives are interwoven in this country. Parker's father was white; as a young slave owned by a Mobile doctor, Parker was secretly taught to read by the doctor's sons; it was a white woman who set him free; and in several near-death moments, he was saved by white men. His abolitionist allies in Ripley included both black freemen and white ministers. This book, too, stands as a monument to Parker's legacy. Royalties from *His Promised Land* will go to the John T. Parker Historical Society, in order to preserve Parker's house, still standing in Ripley, Ohio. Parker's story testifies that even in our most violent conflicts, conscience has no color.

Paul Trachtman is a reviewer based in rural New Mexico.

The Classical Greek Reader
edited by Kenneth J. Atchity
with associate editor Rosemary McKenna
Henry Holt, $37.50

Great Books: My Adventures with Homer, Rousseau, Woolf and Other Indestructible Writers of the Western World
David Denby
Simon & Schuster, $30

At 3 o'clock one summer morning, a young classics scholar was crashing around in the underbrush, making his way up a winding trail on the Cycladic island of Naxos. Kenneth Atchity was in pursuit of nothing less than Homer's dawn. "It was very dark," he recalls, "but somehow I made it up the twisted path, hampered from time to time by the undergrowth and by my vivid imagination of unpropitiated Harpies rooting in the eerie darkness."

Suddenly, from the summit of the island's highest hill, he spied the "rosy-fingered dawn": "I fixed my gaze on the eastern horizon," he writes, "and saw the first glimpse of light, which indeed illuminated in pink a hand-like spread of perpendicular cirrus clouds."

Atchity's passionate connection to a lost and compelling world underlies every entry in his page-turning *Classical Greek Reader*. In a refreshing departure from the standard anthology format, he draws us into the realm not only of Plato and Aeschylus but of lesser-known figures who chronicled the ancient world in vivid and unexpected ways. Across the centuries, ranging from the Homeric poets to Graeco-Roman writers of the third century A.D., we find ourselves in the company of physicians and storytellers, herbalists and romance writers—and women.

Atchity is mining a tradition of inexhaustible riches: the voices we encounter here offer passage to the literary, artistic, social, political, religious, scientific and philosophical texts that underlie Western intellectual tradition.

Certainly, one can return with the pleasure of renewed acquaintance to the forceful, brooding eloquence of Socrates or Thucydides. The historian's masterful meditation on the folly of war bears reading a thousand times over. And the deathbed oration of the doomed philosopher remains eternally transfixing: "The difficulty," Socrates reminds his companions, "is not to avoid death, but to avoid unrighteousness; for that runs faster than death. I am old and move slowly, and the slower runner has overtaken me, and my accusers are keen and quick, and the faster runner, who is unrighteousness, has overtaken them. And now I depart hence condemned by you to suffer the penalty of death; they too go their ways condemned by the truth to suffer the penalty of villainy and wrong."

Under Atchity's tutelage, we can turn, also, to a source as remote and yet familiar as Euclid, marveling at the spare contemporaneity of his defined terms: "A line is length without breadth"; "A triangle is a rectilinear figure included by three sides." *The Elements of Geometry*, "still in use today," as Atchity reminds us, dates from 300 B.C.

Rewarding as these encounters with the undisputed luminaries may be, it is Atchity's introduction to minor, yet memorable, characters that lends a distinctive poignancy and charm to this

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survey. Take, for example, the lyric poet Archilochos, cantankerous, impecunious and often forced to make ends meet as a mercenary, writing around 650 B.C. There was, as he saw it, no glory in war: "Well, what if some barbaric Thracian glories/in the perfect shield I left under a bush?/I was sorry to leave it—but I saved my skin./Does it matter? Oh hell, I'll buy a better one." Or one Alcaeus (590 B.C.), a fellow bard who devised the ideal formula for weathering a bone-chilling night: "Damn the winter cold! Pile up the burning logs/and water the great flagons of red wine;/place feather pillows by your head, and drink."

From the pen of the distinguished Theophrastus, student of Plato and protégé of Aristotle, we possess a sharp and satirical portrait of late-classical Athens' citizenry. In *The Characters*, Theophrastus attempted to provide a systematic (according to his perceptions, anyway) description of the various types one might meet in the street, singling out his particular objects of derision. There is, for instance, "the boor"; he's "the sort of man who drinks barley-brew before going to the Assembly; who asserts that garlic smells as sweet as any perfume; wears shoes too big for his feet; and can't talk without bellowing." Inevitably, too, one will cross the path of "the skinflint," the fellow who "would never let you eat a fig out of his garden, or walk through his land, or pick up one of his windfall olives or dates. . . . He forbids his wife to lend salt, or lamp-wick, or herbs, or barley-grains, or garlands, or holy-cakes." Theophrastus' text in fact became a reference much sought out by playwrights, who drew heavily on his material, especially in the creation of believable buffoons.

Another everyday preoccupation of the ancients, a fascination with folklore and a reliance on folk remedies (the two arenas often intersected), is represented in the obscure and quirky *Theriaca (On Poisonous Animals)*. Compiled by the herbalist Nicander around 170 B.C., the entries provide "unique insight into the herbal industry both of his own time and earlier antiquity." To this earnest chronicler we owe our knowledge of a charm for warding off snakes, addressed to any traveler stranded in a forest. "If you rub a CATERPILLAR from the garden in a little vinegar, the dewy caterpillar with a green back, or if you anoint your limbs all about with the teeming fruit of the MARSH MALLOW, then you will pass the night unscathed."

The celebration of virtue, another theme sounded from Homer onward, also reverberates throughout these texts. In the first century A.D., one Dio Chrysostomos, an aristocratic philosopher who traveled to the farthest reaches of the Roman Empire, constructs a riveting version of the Good Samaritan tale. In his *Euboean Speech*, a paean to the simple and generous peoples of that peninsula, he recounts the good deeds of an impoverished shepherd. Despite his straitened circumstances, the peasant offers what food he has, even a tunic from his daughter, to shipwrecked travelers cast up on his shore. "I knew the houses and tables of the rich . . . of vice-regents and kings," reports Chrysostomos. Yet, he avers, with a forcefulness and yearning that ring true, "I . . . thought their life blessed beyond any I knew."

The classical canon, in an even wider sense, is also the province of David Denby. In the autumn of 1991, 30 years after he had entered Columbia as a freshman, Denby returned to the lecture hall. His mission was to read the books required of all undergraduates in the university's Western civilization courses. The result of his foray into academia is an account of that year, set out in his highly entertaining and instructive *Great Books*.

Denby is a film critic; for the most part he continues to work while attending Columbia: "the point," he observes, was "not to become a hermit" but "to see how the books fit into the preoccupations and trials of an American middle-class male."

He finds, despite misgivings that assail him at the outset, that he is able to recover a deep connection to writers from Homer onward. And he discovers that he is undergoing an exercise in humility as well. "When I took one of the exams, living every adult's anxiety dream," he writes, "I nearly had a nervous breakdown."

It is, altogether, a year of revelations. He opens the *Odyssey*, recalling "a tiresome masterpiece. . . . Penelope weaving, unweaving . . . all those years at the loom while Odysseus was out there at sea fornicating and pretending to

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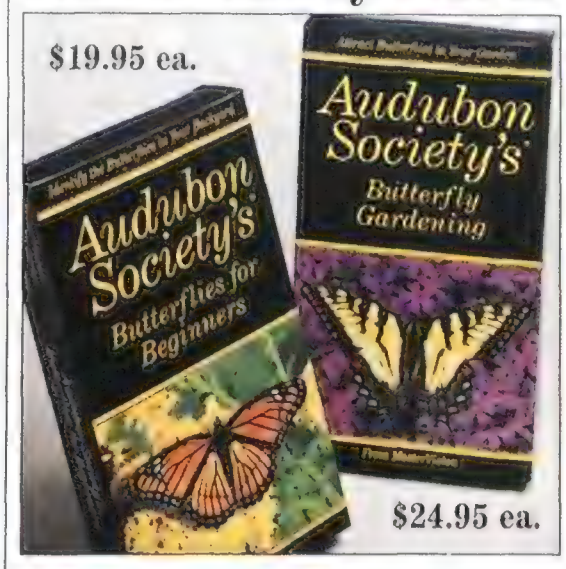

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get home." Instead, he finds himself ravished. "I read," he reports, "to my amazement, without stopping." The poem, he finds, "was an astonishing work, every bit as demanding, as crazy, as wildly beautiful and finally ungovernable as the *Iliad*. . . . [It was] an after-the-war poem, a plea for relief and gratification, and . . . a sensual, even carnal, celebration."

Odysseus himself, rising from the sea in Book VI, has taken on a stature that seems almost cinematic in its intensity: ". . . so Athene gilded with grace his head and his shoulders,/and he went a little aside and sat by himself on the seashore,/radiant in grace and good looks; and the girl admired him." Denby can't help but bestow the ultimate accolade: "MGM in its heyday could have done no more for Gable."

As the year unfolds, Denby ranges far beyond the classical world, into the terrain of Joseph Conrad and Virginia Woolf. But the territory he traverses begins in the sunlight, shadow and incantatory power of Homer.

Kathleen Burke is the book review editor of SMITHSONIAN.

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The Object at Hand (p. 30)

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Around the Mall (p. 34)

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Kite Lines (quarterly magazine), P.O. Box 466, Randallstown, Maryland 21133-0466; 410-922-1212; 410-922-4262 (Fax); e-mail: 102365.1060@compuserve.com

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By *Joseph F. Wilkinson*

A hypochondriac knows those 'germs' that threaten him are real

Like many of life's problems, this one began in my childhood, roughly between the ages of 6 and 8. I liked to listen in on the conversations of grown-ups. Since I was so young, most of the grown-ups I was exposed to were women. My mother and my aunts and the ladies of the neighborhood discussed parenting, recipes, movies and gossip, but their favorite topic was ill health.

"He was on the operating table for four hours . . ."

". . . they took out a tumor as big as a grapefruit . . ."

"And, you know, he never had a sick day in his life . . ."

"Her legs swelled up just like watermelons."

"Her husband remembers her saying that that fish didn't smell right."

". . . and they took just one look at him and sewed him back up."

The stories they told make the episodes on *ER* seem as pallid as a first-aid training film. Hardly any of them had happy endings.

Years later, I was in a supermarket, dithering over a wide variety of grapefruit. A clerk asked me what size I wanted. Without thinking, I answered: "Oh, about as big as a tumor."

Overhearing all those stories of sickness at such an impressionable age left me feeling very vulnerable to bacteria, viruses, parasites, malignant cells, invasive fungi and poisons. Naturally, I became a hypochondriac.

I attended a parochial school, and religion classes often referred to events in the Bible. That's where I learned about leprosy. It had everything. Back then it was incurable. It was also loathsome and drawn out. People were infected with leprosy as a result of contact with lepers. As a child, I used to examine my skin every night for the telltale spots that mark the onset of leprosy. I was particularly careful about sitting next to people on streetcars. In a place like Fort Wayne, Indiana, you couldn't be too careful about random encounters with lepers.

Later, browsing through *National Geographic*, I discovered elephantiasis. I began a nightly comparison of my legs to see if one of them was growing to elephantine proportions. I could see that roller-skating would be a problem with a leg as thick as a telephone pole. Elephantiasis comes from the bite of tropical mosquitoes. I stayed indoors most of that summer and bathed myself in citronella before I went outside.

When I was in high school, I had a stubborn case of athlete's foot. I was terrified. Naturally, I imagined it spreading over my entire body. How could I live with an obituary like that? "His death was attributed to terminal athlete's foot."

I was never one of those hypochondriacs who surround themselves with patent medicines, have a clinical thermometer in every room and take to their beds after the first sneeze. I did not gargle every night before I went to bed. I admit that for a few years I wiped my silver thoroughly with my napkin when I ate in a restaurant. I stopped that after a doctor told me I was just rearranging the bacteria.

I never worried about catching a cold or having a sinus infection. I went for the gold. If an illness wasn't serious, it couldn't get my attention. Among the many things I've thought I've had over the years have been tuberculosis, a brain tumor, poliomyelitis, lupus erythematosus, encephalitis, even emphysema, although I have never smoked. Just let me see an item in a magazine or newspaper that mentions the seven warning signs of anything deadly and incurable—say, Huntington's disease—and within 20 minutes I've discovered I have five of them.

A twinge in my left arm always implies a heart attack in the making. I rarely have a headache, so the slightest discomfort above the eyebrows could mean a brain tumor or a stroke.

It isn't easy being a hypochondriac. For instance, I ran into my ophthalmologist recently. "Doc, you're a sight for sore eyes," I said. "You know, I was reading in a magazine about river blindness, something that you get from being bitten by flies. There were some flies in the house last week. I was wondering . . ."

"Wait," he said, holding up his hand like a policeman directing traffic. "There are many different kinds of flies. The one that transmits river blindness is a blackfly that is native to the tropics, *Simulium damnosum*. The nearest one is thousands of miles away, and you have never been in the tropics. We have already established that you are not suffering from macular degeneration or retinitis pigmentosa or glaucoma. You don't even need glasses. Why don't you come to see me when you have something I can treat, like a sty or pinkeye?"

That's the way it's been recently. Whenever I try to see a doctor, the receptionist usually says he has a full appointment book for the next three months and is then going to a medical conference in Kathmandu. I could be the victim of some horrible disease but I get no sympathy.

I've been a hypochondriac for a while now, and looking back on my working life, I find that I've missed only two days due to illness and one of those days was for a life-threatening hangover. When it comes to your health, I always say, you can't be too careful. But on second thought, maybe you can.

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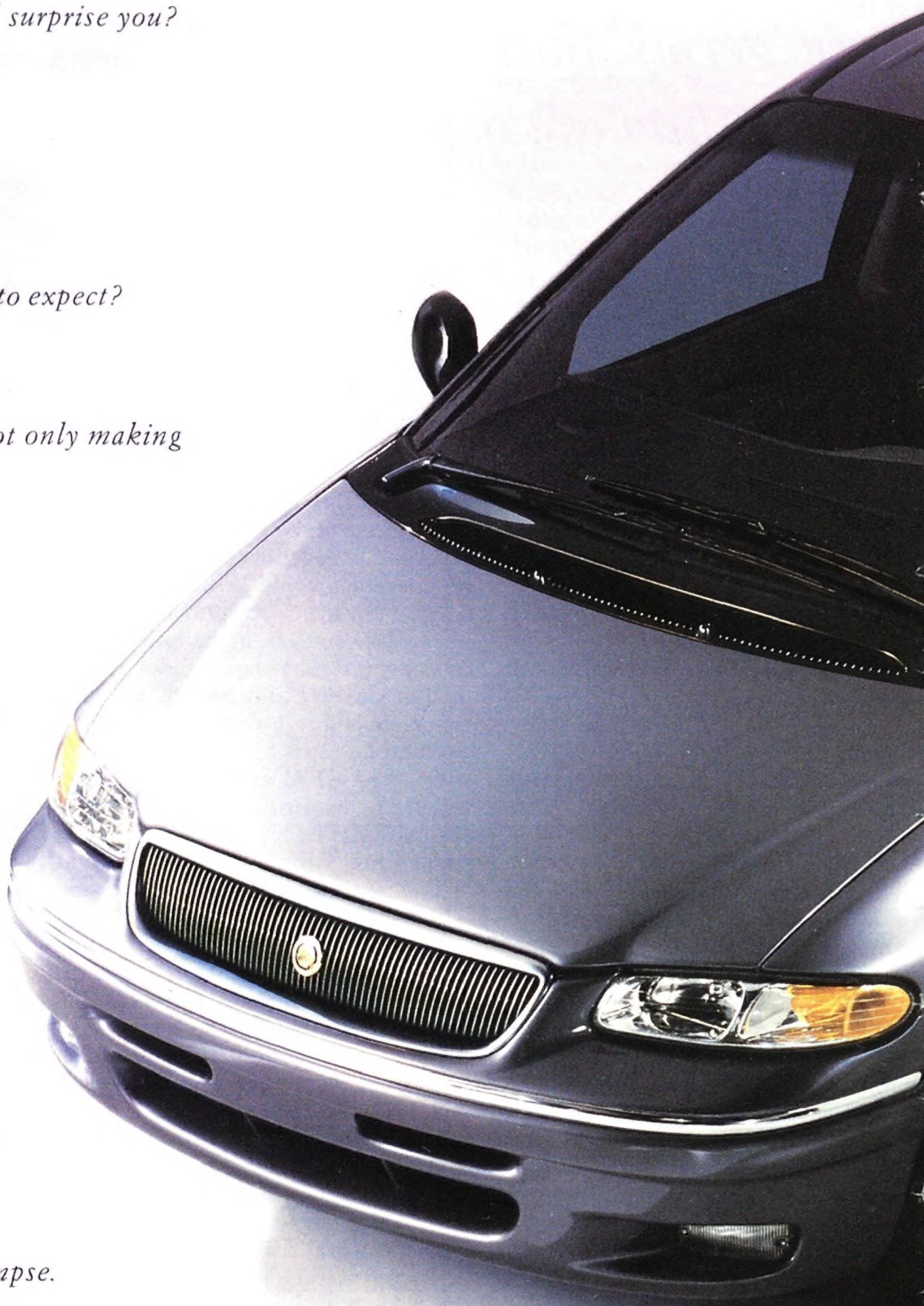

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